SERVICE MANUAL

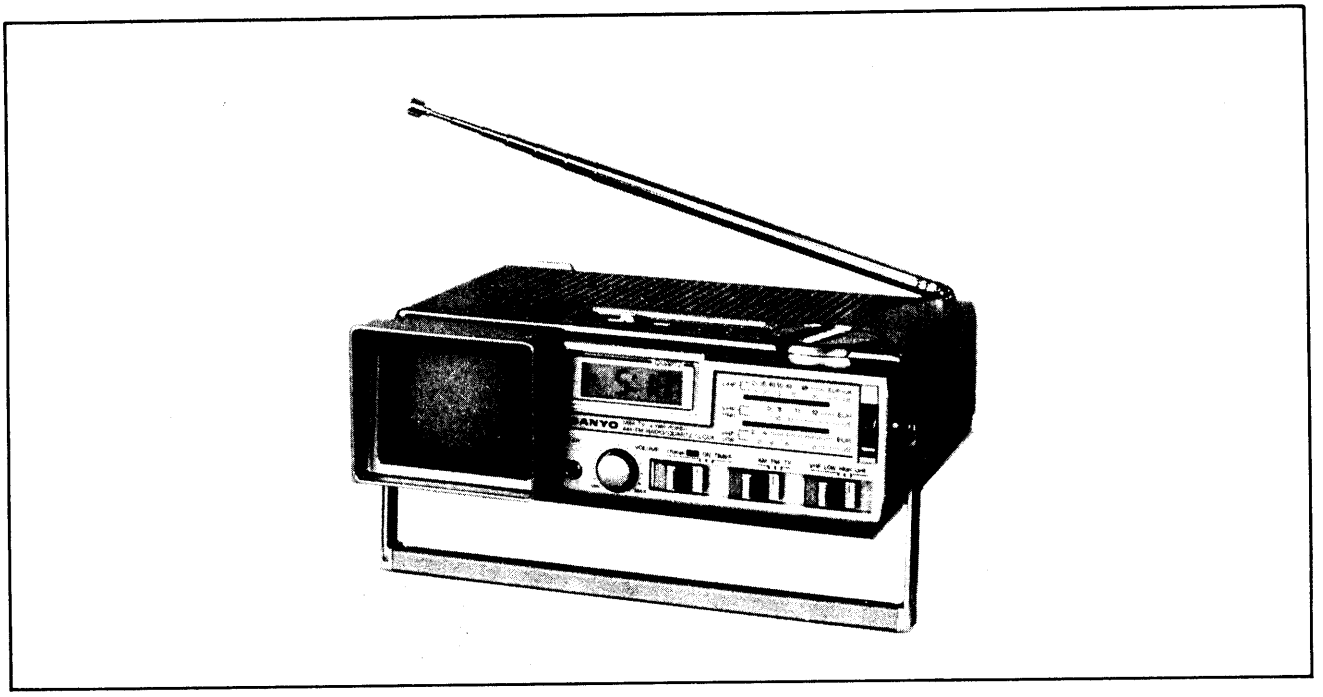
MINI B/W TELEVISION
WITH AM/FM RADIO &
DIGITAL ALARM CLOCK

98.8207.

SANYO

TPM2770

(KUW)



SPECIFICATIONS

Television System	"M" type, 525 lines/frame, 30 frames/sec., 60 fields/sec.		
	"B, G, I" type, 625 lines/frame, 25 frame/sec., 50 field/sec.		
Frequency Range	VHF Channels	US system 2 - 13	EUR system 2 - 12
	UHF Channels	US system 14 - 83	EUR/UK system 21 - 69
	AM	530 - 1,605 KHz	
	FM	88 - 108 MHz	
Antenna Input Impedance	75 ohm		
Intermediate Frequency	TV: Picture	38.9 MHz	
	Sound	34.4 MHz(US) / 33.4 MHz(EUR) / 32.9 MHz(UK)	
	Radio: AM	455 KHz	
	FM	10.7 MHz	
Picture Tube	2.5-inch diagonal, 40 degrees deflection, C215P4 or E2239		
Semiconductors	IC	4	
	Transistor	26	
	Diode	32	
Loudspeaker	45 mm round type, 16 ohm		
Sound output	150 mW (10% distortion) 200 mW Max.		
Power Source	DC 9 V (AC adaptor 110 - 120 / 220 - 240 V, 50 / 60 Hz)		
	Rechargeable battery pack(model NTP-500), 6 "AA" cells and Car adaptor cord ... (optional)		
Power Consumption	DC 2.5 W, AC 10 W(Adaptor)		
Dimensions	175 mm (W) x 62 mm (H) x 159 mm (D) approx. (without handle)		
Weight	0.96 Kg approx.		

NOTE: Specifications are subject to change without notice.

TERMINAL VIEW

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 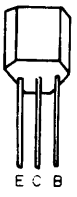 </td>
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 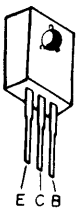 </td>
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 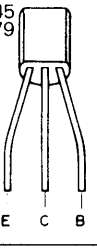 </td>
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 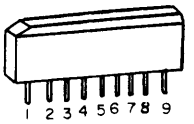 </td>
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 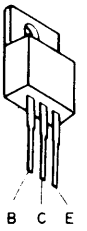 </td>
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 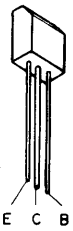 </td>
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 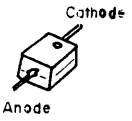 </td>
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 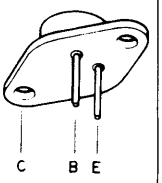 </td>
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 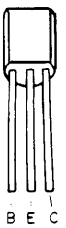 </td>
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 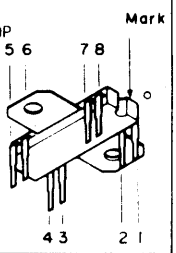 </td>
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 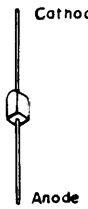 </td>
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 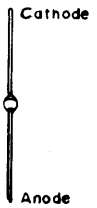 </td>
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GZA3.0Y
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 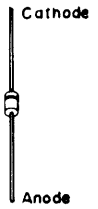 </td>
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 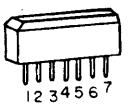 </td>
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 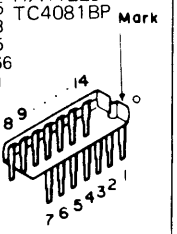 </td>
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 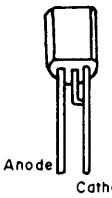 </td>
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 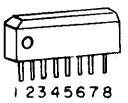 </td>
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 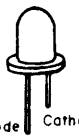 </td>
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 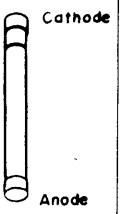 </td>
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 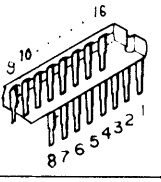 </td>
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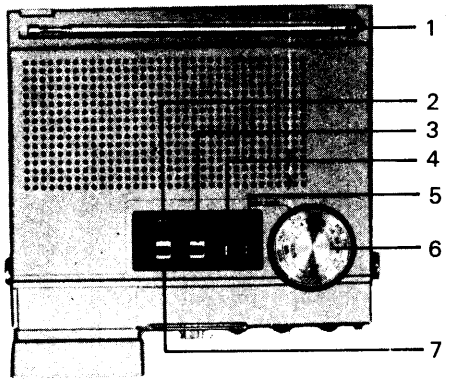
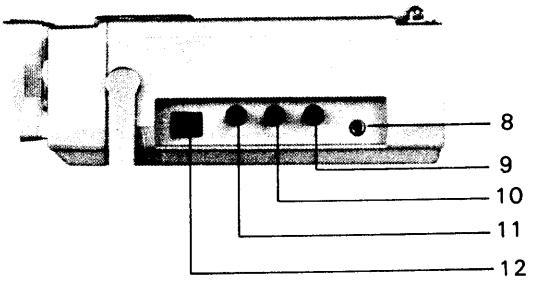
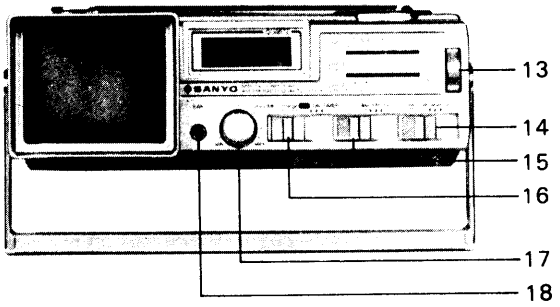
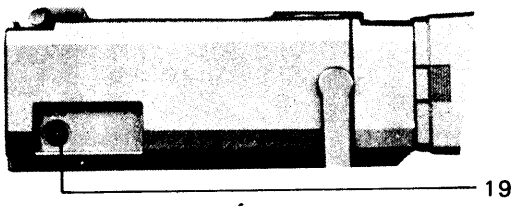
E : Emitter C : Collector B : Base S : Shield

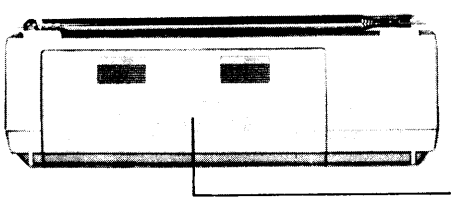
CONTROLS AND TERMINAL IDENTIFICATION











1 Telescopic Antenna
Use this antenna to receive TV (VHF, UHF) and FM broadcast.

2 Light button (LIGHT)
Push this switch to illuminate the LCD clock display.

3 Time Set button (TIME SET)

4 Hour Set button (HOUR)

5 Minute Set button (MINUTE)

6 Radio Tuning knob
Tune to your desired station (AM or FM)

7 Timer Select switch (TIMER SELECT)
Set the selector to wake up with Buzzer, TV or Radio.

8 External Antenna jack (EXT ANT)
Connect the Antenna Adaptor (optional) for use with an external antenna to the jack.

9 Vertical Hold control (V-HOLD)
Adjust this control to stop up or down movement of the picture.

10 Brightness control (BRIGHT)
Adjust this control to obtain favorite brilliance of the picture.

11 Contrast control (CONTRAST)
Adjust this control to obtain proper black and white elements of the picture.

12 TV System switch (TV SYSTEM)
Set this switch to desired television system.

13 Tuning knob
Tune to your desired channel and obtain vivid picture and clear sound.

14 TV Select switch
Set this switch to desired channel band.

15 TV-Radio Select switch
Select your desired function, TV or Radio (AM or FM).

16 Main switch
Turn the power ON or OFF or Timer function. When recharge the rechargeable battery pack (optional), plug in the AC Adaptor packed with the set and turn this switch to OFF(charge) or TIMER potition.

17 Volume control (VOLUME)
Adjust to obtain your favorite volume output.

18 Earphone jack (EAR)
For private listening, plug the earphone (supplied) into the jack.

19 External Power jack (DC IN 9V)
When use the set on AC 110-120 volt or 220-240 volt or external DC 12 volt, plug the AC Adaptor or Car Battery Cord (model MDC-53B...optional) into this jack.

20 Battery Compartsment
Remove the lid by pushing to the direction of the arrow and install dry cells or rechargeable battery pack.

MECHANICAL DISASSEMBLIES

CABINET TOP REMOVAL

1. Place the TV set upside down on a soft surface.
2. Remove four screws as indicated in Figure 1.
3. Open the Battery Compartment Lid on the rear side of the TV set by sliding it in the direction as indicated in Figure 2.
4. Take out a Radio Tuning Knob.
5. Separate the Cabinet Top from the set.
   (NOTE : Be careful of the Rod Antenna, Handle and 2p Speaker lead socket, when you lift the Cabinet Top.)

RADIO P.C.B. REMOVAL

1. Remove the Cabinet Top. (Refer to CABINET TOP REMOVAL).
2. Remove two screws as indicated in Figure 3.
3. Lift the Radio P.C.B. in the direction (A) of the arrow as indicated in Figure 4.
4. Remove the 7P socket, 3P socket and the Lead(Green) from P1, if necessary.

TV P.C.B. REMOVAL

1. Remove the Cabinet Top and Radio P.C.B. by following the instructions for them.
2. Take out four knobs from front of the set.(TV SELECT, TV-RADIO SELECT, ON-OFF SELECT and VOLUME.)
3. Remove two screws as indicated in Figure 4.
4. Depress the Back Side of Cabinet Bottom slightly in the direction (B) and pull it in the direction (C) of the arrow as indicated in Figure 4. Then the Cabinet Bottom will be removed.
5. Slightly pull the Hook in the direction (D) and take off the Front Cabinet. (See Figure 5)
6. Remove the TV P.C.B. from Chassis Frame.

* Use caution not to apply excessive force to the Contrast, Brightness and Vartical Hold knobs.

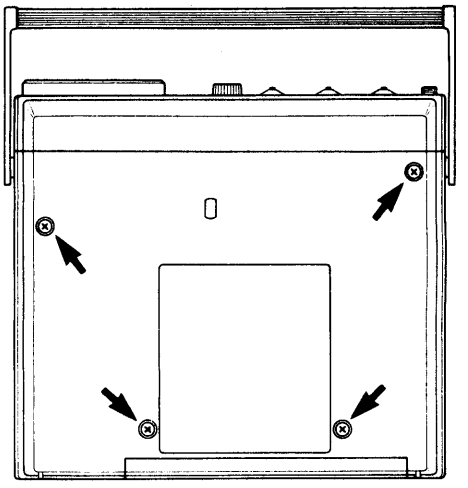


Figure 1

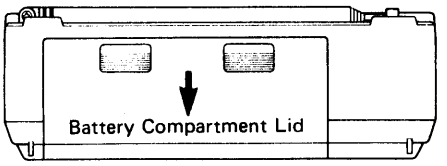


Figure 2

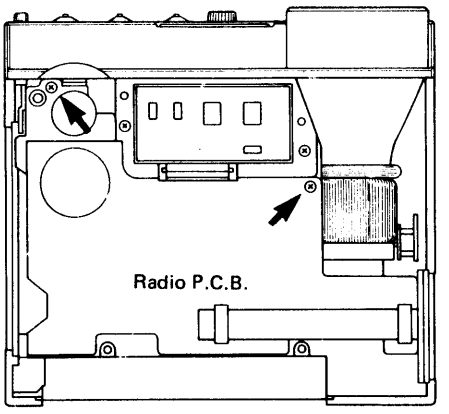


Figure 3

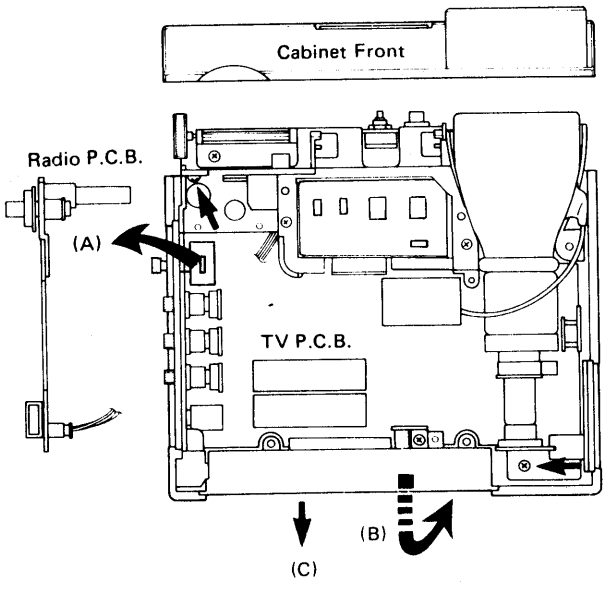


Figure 4

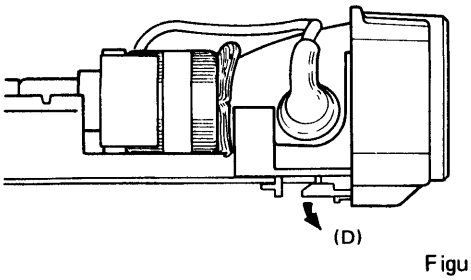


Figure 5

PICTURE TUBE REMOVAL

1. Remove the Cabinet Top, Radio P.C.B. and Cabinet Front by following the instructions for them.
2. Remove the Anode Cap and the Picture Tube Socket. Then, slightly loosen the screw securing the Deflection Yoke. (See Figure 6)
3. Pull the picture tube toward you.

CAUTION : When assembling after servicing.

1. Dress all the lead to keep away from the SF101 and T101.
2. Dress the 7P socket lead to keep away from Rod Ant. lead.

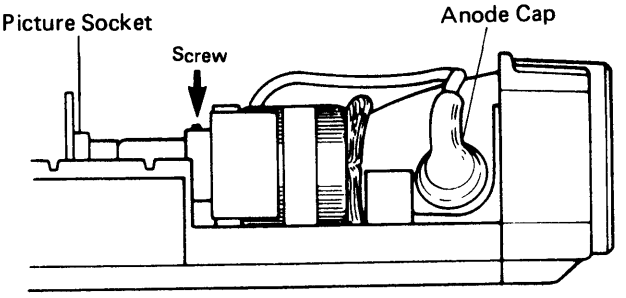


Figure 6

RADIO DIAL CALIBRATION (See Figure 7)

1. Turn the tuning capacitor drum counterclockwise until it stops.
2. Turn the dial shaft counterclockwise until it stops.
3. After counterclockwise turn the drum and shaft indicated by arrow face each other.
4. Put the tuning belt on the drums.

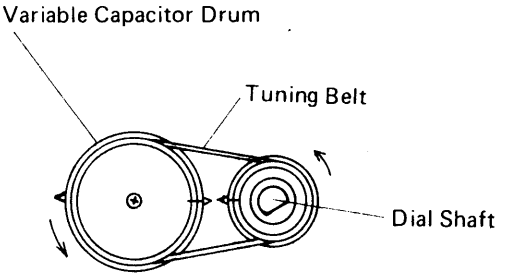


Figure 7

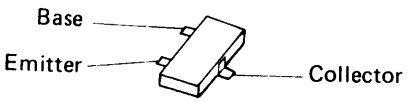
INSTRUCTIONS FOR HANDLING CHIPS

ABOUT CHIPS

Some resistors and capacitors are provided with lead wires, while others are not. The latter are called chips because of their configurations. Unlike those with lead wires, they can be mounted directly on the circuit board as they as supplied in the package form. The chip resistor is formally called the fixed thick film chip resistor, and the chip capacitor the monolithic ceramic chip capacitor, and the chip transistor the microminiature silicon chip transistor.

CAUTION AND REMARKS

1. Use only a pencil-tip soldering iron of less than 30W.
2. Keep the temperature of the soldering iron at 270 ± 10 deg. C (518 ± 18 deg. F) for soldering the chip resistors and capacitors.
   At 250 ± 10 deg. C (482 ± 18 deg. F) for soldering the chip transistors.
3. Complete soldering work in less than 3 seconds. Excessive application of heat may damage electrode or body of the element.
4. The resistor chip is colored in black on the front surface and white at the bottom. The front surface should face upward when the chip is placed on the circuit board.
5. The capacitor chip can be placed without regard to side.
   NOTE: Capacitors are colored in three colors and classified as follows.
   a) Temperature compensation ceramic capacitors.
      0.5 - 30pF : colored in white
      11 - 510pF : colored in Gray
   b) Hi-K ceramic capacitors.
      220 - 47000pF : colored in Brown
6. The transistor chips have terminals as illustrated below.



7. Do not re-use the chip part once removed. Electrodes on both sides or body itself might have been damaged due to the heat applied to the element while removing. Re-usage may cause another defect. Re-usage of transistors may be possible provided they have been removed in good condition during the servicing.

TOOLS REQUIRED FOR SERVICING

1. Pencil-tip soldering iron with temperature control.
   * pencil-tip less than 3mm diameter (1/8")
2. Solder.
   * 0.7 - 1.0mm diameter (1/32" - 3/64")
3. Braided wire.
4. A pair of tweezers, needle nose pliers or the like.

REMOVAL OF CHIP ELEMENTS

1. Apply heat at the terminals with a soldering iron and absorb melting solder with braided wire. (See Figure 8)
2. Hold the chip with a pair of tweezers and turn it gently while unsoldering it at the terminals by applying heat with a soldering iron. (See Figure 9)
3. The circuit board base needs to be cleaned of any remaining solder with the braided wire and soldering iron.
   * The removed chips cannot be used again.

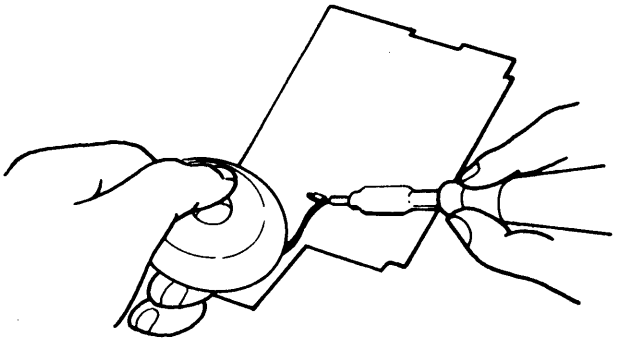


Figure 8

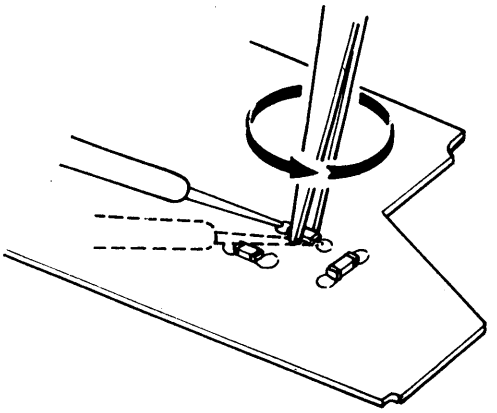
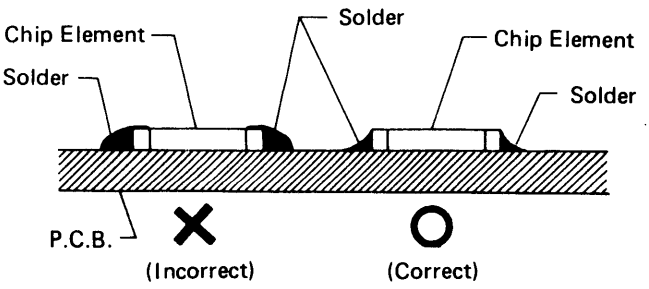


Figure 9

MOUNTING CHIP ELEMENTS

1. Place the chip at its correct position on the pattern of the printed circuit board and solder it.
   * The soldering iron should not touch the body of the chip element.
   * Apply solder to the chip element as illustrated below.
2. Allow the chip to cool off after it has been soldered.

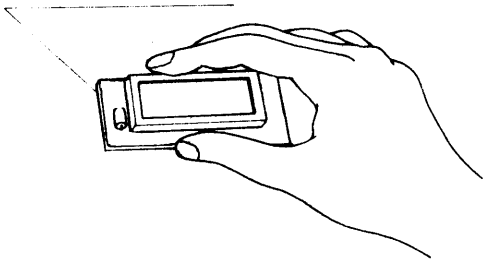


HANDLING AND REPAIRING OF LCD QUARTZ CLOCK P.C.B.

HANDLING OF LCD QUARTZ CLOCK P.C.B.
(MODULE & CONTROL UNIT)

1. LCD Quartz Clock uses C-MOS LSI and C-MOS IC. These LSI and IC are very sensitive to static electricity and can be easily damaged by the static electricity. Therefore, give a proper protection to the Clock P.C.B. when handling it.
2. As LCD is very weak against ultraviolet rays, do no expose the watch to direct sunlight or extremely hot temperatures.
3. The polarized plate is attached on the surface of LCD to make letter contrasts. As the plate can easily be scratched, pay due caution when handling it.
4. Strong shock on the surface of LCD will cause defective electrical contacts and time display.
5. After attaching LCD to the unit, wipe the surface of LCD clean with a soft cloth to prevent it from electrification.
6. Do not touch the P.C.B. pattern directly. Hold the both ends of the P.C.B.

MODUL. UNIT P.C.B.

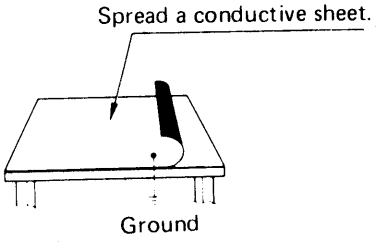


LCD QUARTZ CLOCK P.C.B. STORAGE

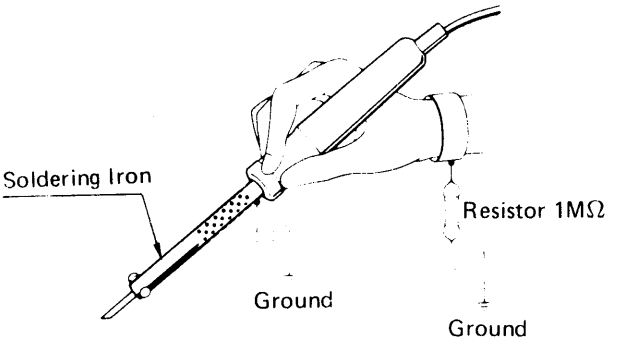
1. Store the watch in an ambient temperature of 0°C – 50°C and low humidity. Also keep it in a dark place.
2. Do not unwrap the package of the parts before use.
3. Completed LCD Quartz Clock P.C.B. and LCD Quartz Clock Control Unit are prepared as repair parts.

NOTES ON CLOCK P.C.B. REPAIR

1. Spread the conductive sheet on the worktable and ground it. Perform the repair work on the table.

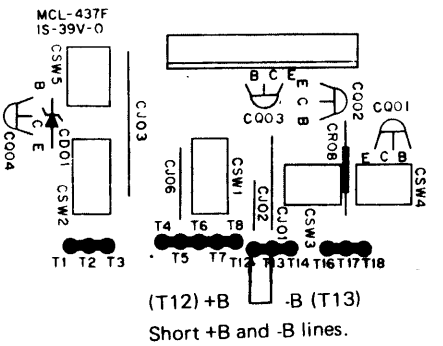


2. Use a soldering iron for IC (Insulation resistance: 300M-ohm) or ground the ordinary soldering iron to prevent alternate current leakage.
3. When performing a repair work, wear the grounded conductive bracelet with 1M-ohm resistor.



4. Ground the meter body to avoid electrification.
5. Do not use the resistance range at the measurement by the tester.
6. Take out the six dry batteries and a silver oxide battery. Then, remove the LCD Quartz Clock P.C.B. following the disassembly method.
7. Discharge the electric potential by shorting the +B line and –B line in the Clock Control Unit. Then, ground the +B line.

CONTROL UNIT P.C.B.



Short +B and -B lines.

REPAIR OF LCD QUARTZ WATCH

- Before repair work, check to see that the silver oxide battery is correctly set in the battery holder and that the leads connected to the Watch P.C.B. are not broken.
- When any trouble on the watch display is caused, replace the completed LCD Quartz Clock P.C.B. or the LCD Quartz Control Unit with a new one.
- Replace them when the following troubles appear.
  1. LCD display does not appear when the battery is replaced with a new one.
  2. A part of the digital display is missing.
  3. Time display is skipped over.

IMPORTANT NOTICE FOR SERVICE PERSONNEL BEFORE SERVICING

PLEASE READ BEFORE ATTEMPTING SERVICE

1 DO NOT DISCHARGE, ARC, OR MEASURE HIGH VOLTAGE WHEN HIGH VOLTAGE LEAD IS CONNECTED TO CRT. DISCHARGE 2ND ANODE OF CRT ONLY AFTER HIGH VOLTAGE LEAD HAS BEEN DISCONNECTED. DO NOT DISCHARGE HIGH VOLTAGE LEAD AT ANY TIME, DAMAGE TO TRANSISTORS MAY RESULT.
2 While the receiver is in operation, do not attempt to connect or disconnect any wires.
3 Disconnect all power before attempting any repairs.
4 When the power is on, do not attempt to short any portion of the circuit. This shorting may cause damage to the transistors in the receiver.
5 When adjusting Horizontal Oscillator Frequency, do not vary this frequency more than ±800 Hz from center frequency: 800 Hz equals 13(US) or 16(EUR,UK) bars.

TELEVISION ADJUSTMENT

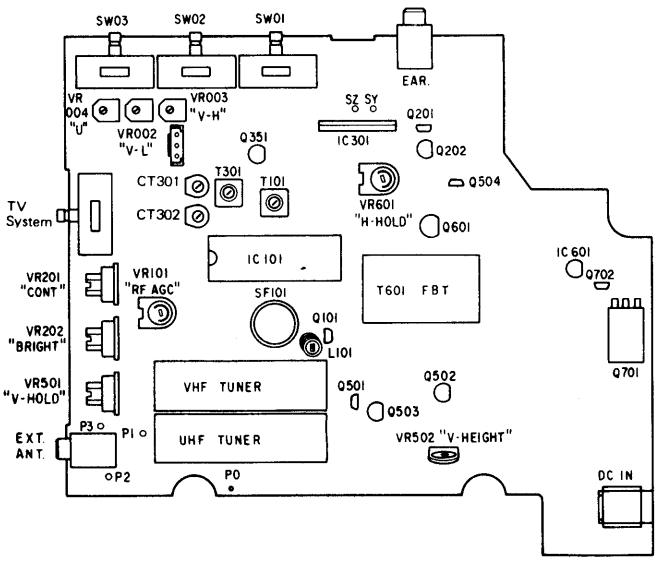
PICTURE FOCUS

Connect the white lead from Point C9 on CRT Socket P.C.B. to one of three terminals (F0, F1 and F2) for the best focus.

DEFLECTION YOKE AND CENTERING RINGS

1 Turn the receiver on and disconnect the antenna.
2 Loosen the Deflection Yoke Clamp, and carefully move the yoke on the neck of the picture tube as far forward as possible. Rotate the yoke until the top and bottom edges of the raster are straight. Tighten the clamp.
3 Center the raster and eliminate shaded corners by rotating the centering rings until the best effect is obtained.

TV CHASSIS TOP VIEW



VERTICAL HEIGHT

1 Adjust the set as first as possible after switch "ON".
2 Adjust V-Height control (VR502) to obtain proper picture height.
3 Rotate V-Hold control (VR501) completely clockwise or counterclockwise to confirm the picture rolls up or down at both extreme positions.

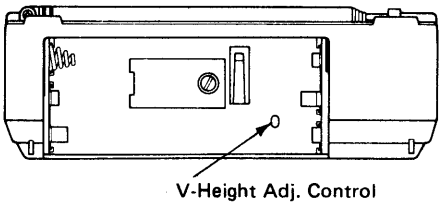


Figure 10

HORIZONTAL HOLD CONTROL

Adjust the H-Hold control (VR601) to corrects any slanting of the picture.

SOUND IF ALIGNMENT PROCEDURE

1 With the receiver in normal operating condition, tune in a strong local station for best reception of picture.
2 Reduce signal strength at the antenna terminals until distortion appears.
3 Adjust T301 for UK broadcast system...CCIR-I (at 6 MHz), CT301 for European broadcast system...CCIR-B/G (at 5.5 MHz) and CT302 for US broadcast system... CCIR-M (at 4.5 MHz) for maximum sound without buzz and distortion.

AGC ADJUSTMENT PROCEDURE

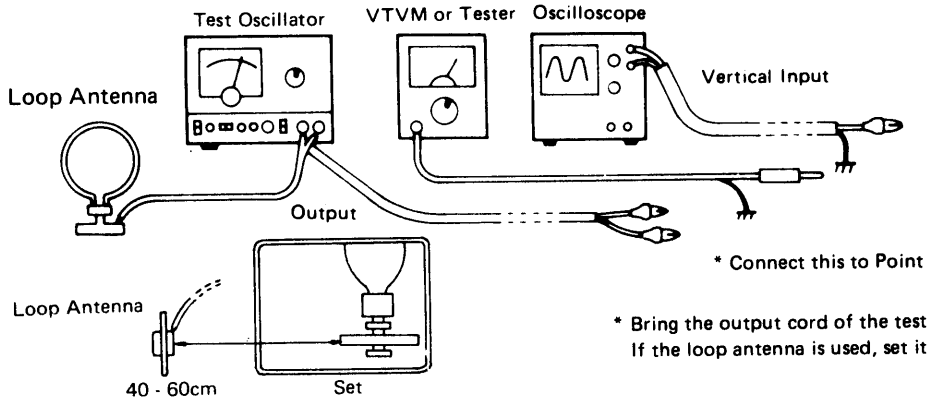
Connect signal (65 dB 75 ohm open end) to VHF antenna terminal and adjust AGC DELAY Control(VR101) to 2.2±0.05 V at AGC Terminal of Tuner.

SUB TUNING ADJUSTMENT PROCEDURE

1 When adjusting channel indicator at each TV band. Set tuning knob to used higher channel.
2 With the receiver in normal operating condition, tune in a strong local station for best reception of picture and sound.
3 Reduce signal strength at the antenna terminals until distortion appears.
4 Set Sub Tuning Controls for best picture and minimum sound beat in picture. (V-Low: VR002, V-High: VR003, UHF: VR004)

AM RADIO ALIGNMENT PROCEDURE

CONNECTION OF THE MEASURING INSTRUMENTS



* Connect this to Point SX in the TV PCB.

* Bring the output cord of the test oscillator close to the Bar Antenna. If the loop antenna is used, set it as described left.

PRELIMINARIES

1 Oscilloscope is set to prevent the waveform from saturating and to obtain peak value.
2 Set the VTVM to the 3V, AC range.
3 Modulate the test oscillator at 1KHz and set the degree of modulation to approximately 30% if the modulation degree is variable.

AM IF ADJUSTMENT (455KHz Adjustment)

1 Set the test oscillator to 455KHz.
2 Adjust the cores of IFT, RT04 and RT05 for maximum reading on VTVM. (Repeat the adjustment two or three times.)
   * Keep the output of the test oscillator as low as possible. Check to see that the waveform is not saturated by using the oscilloscope.

AM FREQUENCY RANGE ADJUSTMENT

(Adjustment to cover 505KHz - 1650KHz)

1 Set the test oscillator to 505KHz.
2 Turn the Radio Tuning Knob to the lower frequency. (Tuning Capacitor plates fully meshed).
3 Adjust the core of RT03 for maximum oscilloscope waveform and VTVM indication.
4 Set the test oscillator to 1650KHz.
5 Turn the Radio Tuning Knob to the highest frequency. (Tuning Capacitor plates fully open).
6 Adjust the trimmer capacitor (VCT-0) of the tuning capacitor for maximum oscilloscope waveform and VTVM indication.

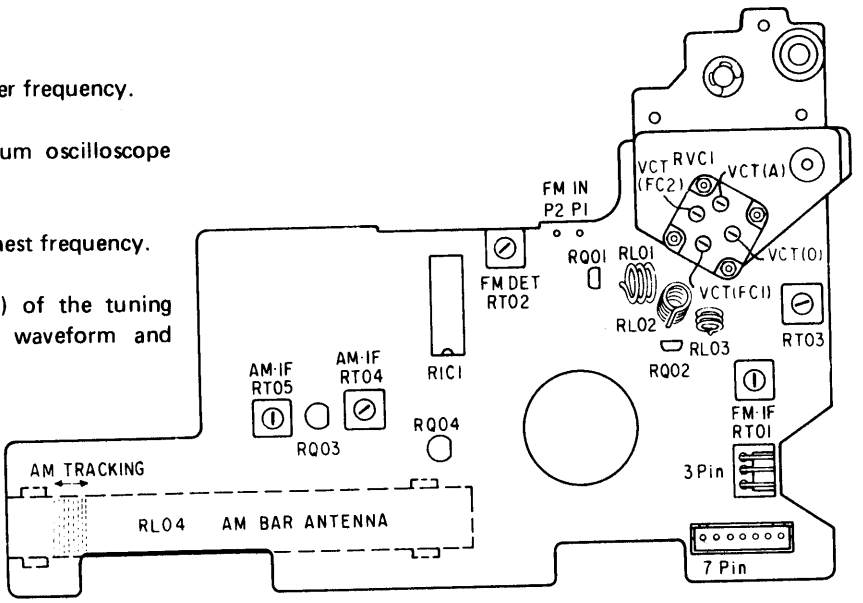
VCT(A)	AM TRACKING
VCT(0)	AM FREQUENCY RANGE
VCT(FC1)	FM FREQUENCY RANGE
VCT(FC2)	FM TRACKING
RT03	AM FREQUENCY RANGE
RL01	FM TRACKING
RL03	FM TRACKING

AM TRACKING ADJUSTMENT

1 Remove the paraffin fastening the coil of the Bar Ant. (RL04), so that the coil can be moved.
2 Set the test oscillator and the Radio Dial to 600KHz.
3 Move the coil of the bar antenna for maximum oscilloscope waveform and VTVM indication.
   * After adjustment, fasten the coil with paraffin.
4 Set the test oscillator and the Radio Dial to 1400KHz.
5 Adjust the trimmer capacitor (VCT-A) of the tuning capacitor for maximum oscilloscope waveform and VTVM indication.

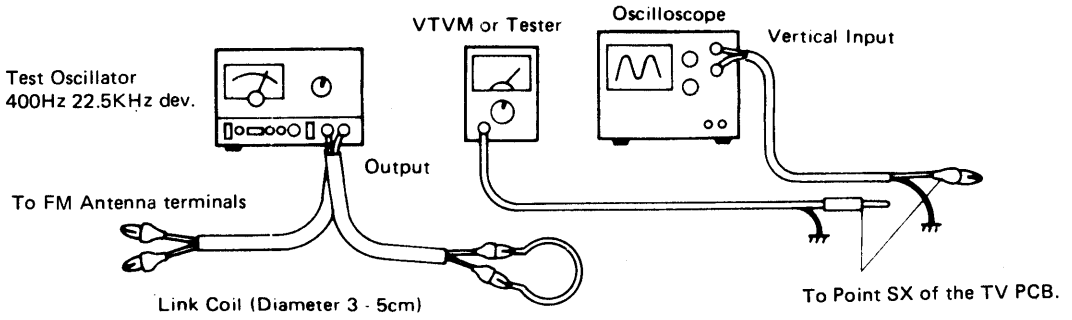
* Repeat the AM frequency range and AM tracking adjustments two or three times.

RADIO CHASSIS TOP VIEW



FM RADIO ALIGNMENT PROCEDURE

CONNECTION OF THE MEASURING INSTRUMENTS



PRELIMINARIES

1 Set the VTVM to about 3V, AC range.
2 Make a link coil of diameter 3 - 5cm(2") as illustrated for the test oscillator output and set it on RL02 when FM IF adjustments are performed. Connect the oscillator output to the FM antenna terminals for some other adjustments.

FM IF ADJUSTMENT (10.7MHz Adjustment)

1 Set the link coil on RL02.
2 Set the test oscillator to 10.7MHz and adjust IFT RT02 for maximum on the VTVM.
3 Minimize the test oscillator output as much as possible and adjust IFT RT01 and RT02 for maximum on the VTVM. (Repeat the adjustment two or three times.)

FM FREQUENCY RANGE ADJUSTMENT

(Adjustment to cover 87.2MHz - 109MHz)

1 Set the test oscillator to 87.2MHz and connect it to the FM antenna terminals.
2 Turn the Radio Tuning Knob to the lower frequency. (Tuning Capacitor plates fully meshed).
3 Adjust RL03 for maximum indication on the oscilloscope and VTVM.
   * After adjustment, secure RL03 with paraffin.
4 Set the test oscillator to 109.0MHz and turn the Radio Tuning Knob to the higher frequency. (Tuning Capacitor plates fully open).
5 Adjust the trimmer capacitor (VCT-FC1) on the tuning capacitor for maximum indication on the oscilloscope and VTVM.

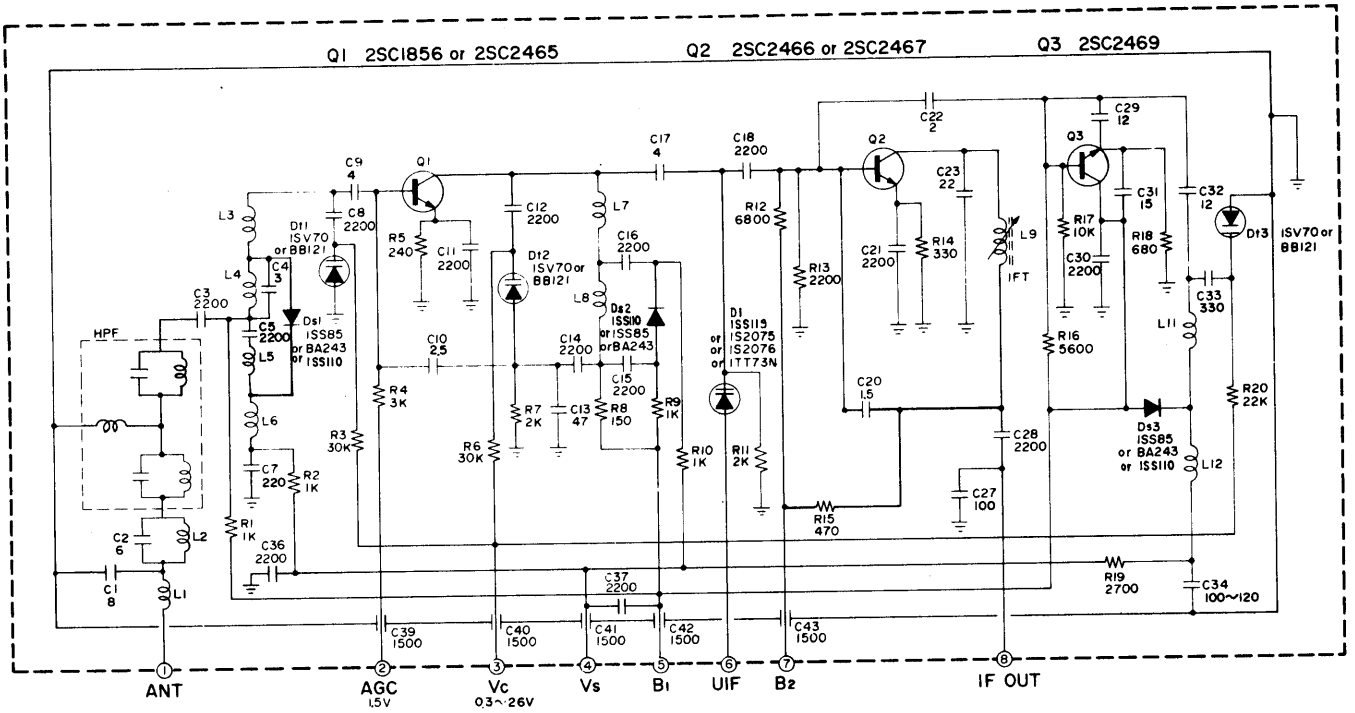
FM TRACKING ADJUSTMENT

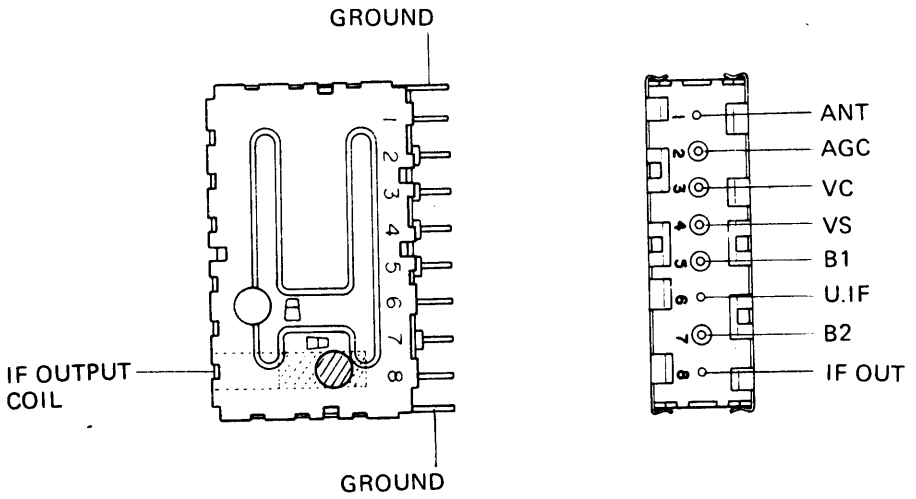
1 Set the test oscillator to 90.0MHz and connect the output to the FM antenna terminals.
2 Set the Radio Dial to 90.0MHz and adjust RL01 for maximum.
   * After adjustment, secure RL01 with paraffin.
3 Set the test oscillator and the Radio Dial to 105.0MHz.
4 Adjust the trimmer capacitor (VCT-FC2) of the tuning capacitor for maximum amplitude on oscilloscope and VTVM indication.

* Repeat the FM Frequency range and FM tracking adjustments two or three times.

SCHEMATIC DIAGRAM (TUNER)

VHF TUNER
4 – 1151 – 07740

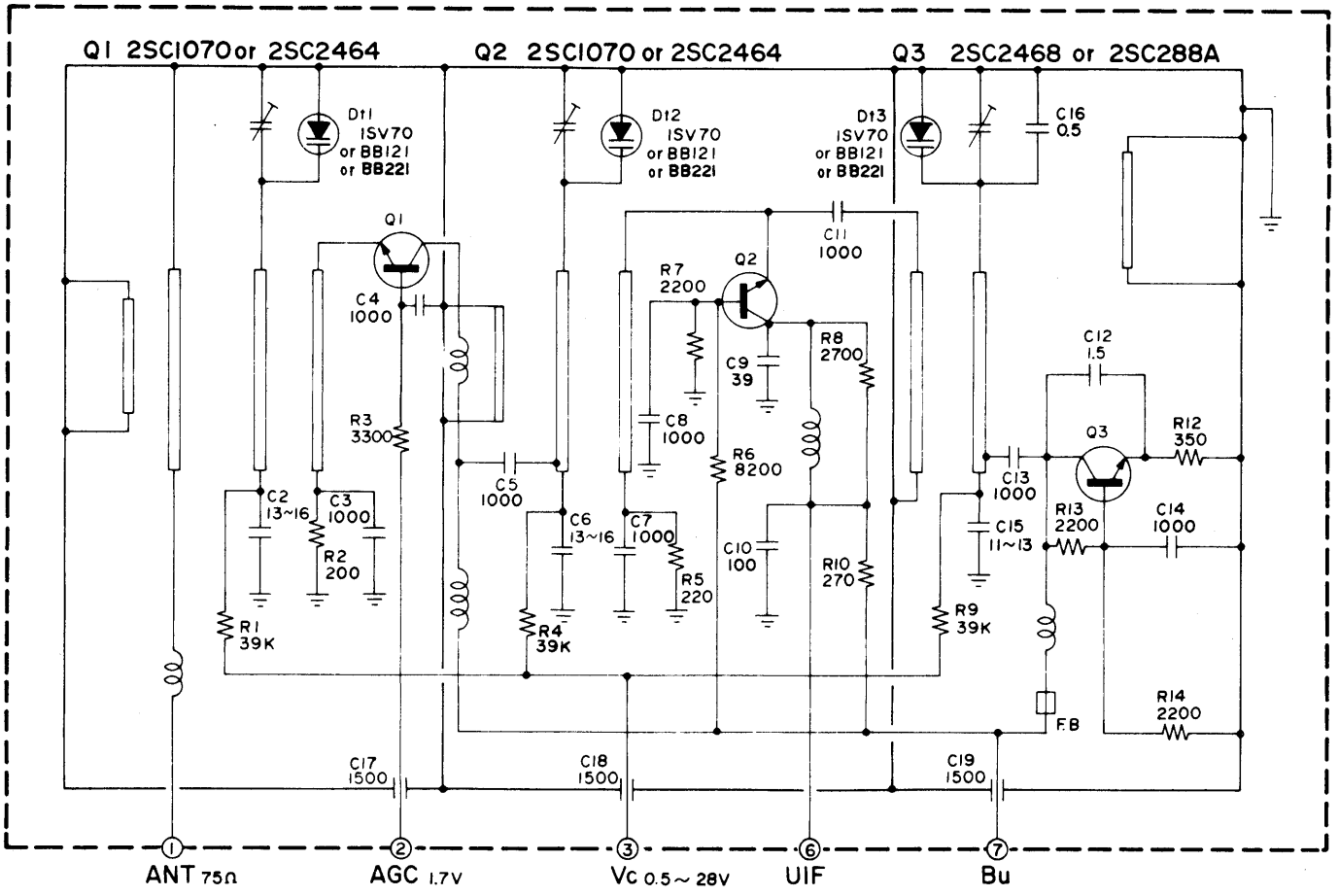


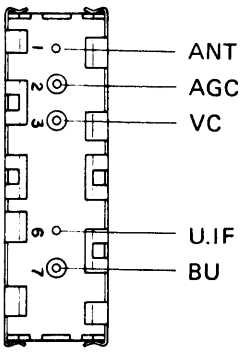


PICTORIAL OF VHF TUNER

SCHEMATIC DIAGRAM (TUNER)

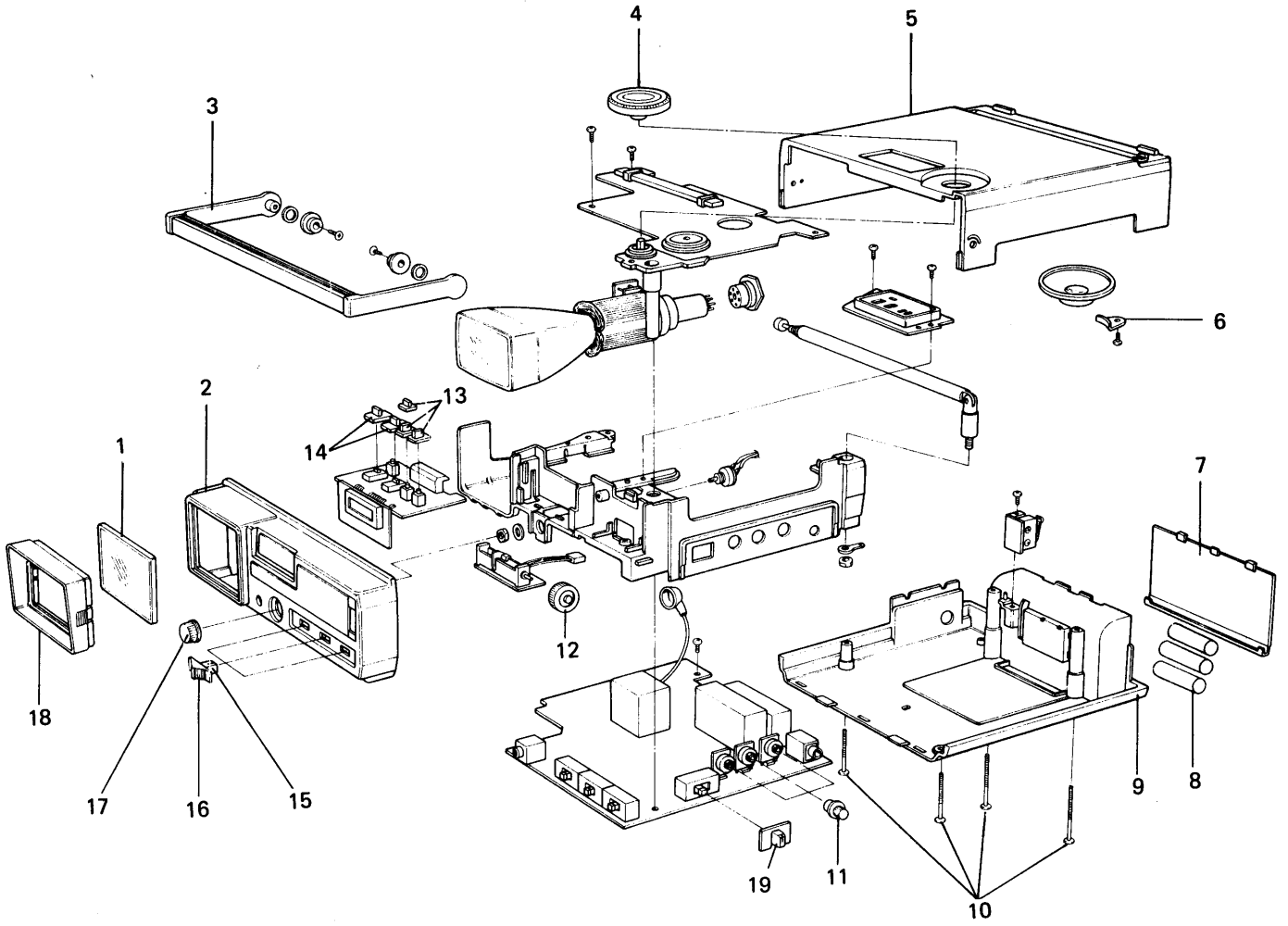
UHF TUNER
4 – 1151 – 46540





PICTORIAL OF UHF TUNER

REPLACEMENT PARTS LIST



Key No.	Parts No.	Description	Q'ty
1	111 2 1141 15270	SAFETY SHIELD-TMF	1
2	111 0 1121 12470	CABINET FRONT ASSY-TPE	1
3	111 0 1711 07570	HANDLE ASSY-TPE	1
4	111 0 1631 09070	RADIO TUNING KNOB ASSY-TPE	1
5	111 0 1161 19170	CABINET TOP ASSY-TPE	1
6	111 2 3571 11070	SPEAKER MTG BRACKET-TNC	1
7	111 2 1161 20970	BATTERY COVER-TPE	1
8	111 2 6141 13570	BATTERY CASE-TMF	3
9	111 0 1161 19274	CABINET BOTTOM ASSY-TPE-C	1
10	111 2 4211 15170	SUS BTNB 3.0x40	4
11	111 2 1641 27770	TV CONTROL KNOB-TPE	3
12	111 2 1631 19270	TV TUNING KNOB-TPE	1
13	111 2 1641 24470	TIME SET BUTTON-TMF	3
14	111 2 1641 24570	TIMER SW KNOB-TMF	2
15	111 2 8911 20970	KNOB SPACER-TPE	3
16	111 2 1641 27670	SELECT KNOB-TPE	3
17	111 2 1641 27570	VOLUME KNOB-TPE	1
18	111 2 6151 10770	HOOD-TPE	1
19	111 2 1641 27870	TV SYSTEM SELECT KNOB-TPE	1

PARTS LIST (TV)

Schematic Location	Parts No.	Description	Q'ty
CHASSIS PARTS			
	111 0 3391 10170	CLO BASE ASSY-TPE	1
	111 2 1421 12770	KNOB BASE-TPE	1
	111 2 3121 21070	CHASSIS FRAME-TPE	1
	111 2 3691 17470	MCR SW MTG BRKT-TPE	1
	111 2 6221 13870	ANT EARTH TIP-TMF	1
	111 2 6231 16471	CRT EARTH PLATE-TPE	1
PACKING MATERIALS			
	111 6 1131 21380	OUT CORR CASE-TPE-KB	1
	111 6 1411 12182	IND CASE-TPE-KB	1
	111 6 2511 19670	IND POLY COVER-MBA	1
	111 6 3111 60970	TOP INNER CUSH-TPE	1
	111 6 3111 61070	BOT INNER CUSH-TPE	1
	111 6 3231 12570	WRAPPING SHEET-CAA	1
	111 6 3911 10970	TOP PAD-TMF.US	2
ACCESSORIES AND LABELS			
	4 6611 00270	S-OXIDE BAT G12	1
	111 0 1771 10470	SHLD BELT AY-TPE	1
	111 0 6151 11270	HOOD ASSY-TPE	1
	111 0 9021 04170	CONVERSION PLUG ASSY	1
	111 0 9131 15600	AC ADAPTOR ASSY	1
	111 2 1811 19170	CARRING CASE-TPE	1
	111 2 1811 19270	CARRY CASE COVER-TPE	1
	111 6 2511 21871	IND POLY COV-CAA-C	1
	111 6 2701 18902	PM ASSY-TPE-C	1
	111 6 2711 05870	ENVELOPE-SR-C	(1)
	111 6 4111 15002	INST MANUAL-TPE-C	(1)
	111 6 4211 29169	SCHEMATIC DIAG-82J	(1)
	111 6 4551 18770	SERIAL NO LABEL-TJP	2
SCREWS-CABINET			
	101 3 1202 60601	SSR , 2.6X 6.Z1	2
	102 3 2203 00601	SBRT2, 3.0X 6.Z1	1
	102 3 2203 00802	SBRT2, 3.0X 8.Z1	1
	102 3 2203 01001	SBRT2, 3.0X 10.Z1	1
	104 3 1103 00006	SRN 1, 3.0,	1
	111 2 4211 15070	SUS BTNB, 3.0X 40,	4
SCREWS-CHASSIS			
	102 3 2203 00802	SBRT2, 3.0X 8.Z1	1
	102 3 2203 01001	SBRT2, 3.0X 10.Z1	5
	104 3 1204 00001	SRN 2, 4.0, Z1	1
ELECTRICAL PARTS			
	4 1151 07740	VHF TUNER	1
	4 1151 46540	UHF TUNER	1
	4 1511 09970	SPEAKER	1
	4 2531 12570	U-V FILTER	1
	4 9541 00470	LCD CLOCK DQ460F	1
CT301	4 2241 04570	TRIMMER CAP 20PMAX	1
CT302	4 2241 04570	TRIMMER CAP 20PMAX	1
L101	4 2531 15170	FILTER COIL 0.56UH	1
L102	4 2531 19270	FILTER COIL 100UH	1
L103	4 2721 02206	PEAKING COIL 220	1
L301	4 2531 15770	FILTER COIL 2.2UH	1
L302	4 2591 05370	FM PHASE COIL 68UH	1
L351	4 2721 02207	PEAKING COIL 220	1
L601	4 2761 51770	DEFLECTION YOKE	1
SF101	4 2531 12423	SAW FILTER	1
T101	4 2711 32970	VIDEO IF TRANS	1
T301	4 2561 94670	QUADRATURE COIL	1
T601	4 2751 49000	FLYBACK TRANS	1
X201	4 2531 16470	CERAMIC TRAP 4.5M	1
X202	4 2531 16570	CERAMIC TRAP 5.5M	1
X301	4 2531 10970	CERAMIC FILTER 4.5M	1
X302	4 2531 11070	CERAMIC FILTER 5.5M	1
X303	4 2531 11170	CERAMIC FILTER 6.0M	1
SMALL PARTS			
	111 9 1825 81420	TV PCB ASSY-MAIN	1
	4 2261 49570	PC BOARD 82JD-P	1
	4 2311 11770	MICRO SWITCH	1
	4 2351 71270	CRT SOCKET	1
	4 2351 74570	1P DC JACK-E	1
TUNING	4 2361 14570	3P M MICRO PLUG	1
CLOCK	4 2361 17780	10P U MICRO PLUG	1
	4 2441 07370	ROD ANTENNA	1
ANT.	111 0 9081 01031	1P MICRO SOCKET ASSY	1
FUSE	111 0 9081 01032	1P MICRO SOCKET ASSY	1
SP.	111 0 9081 03045	3P M MICRO SOCKET AY	1
TUNING	111 0 9081 03057	3P M MICRO SOCKET AY	1
VOL.	111 0 9081 03059	3P MICRO SOCKET ASSY	1
RADIO	111 0 9081 07001	7P M MICRO SOCKET AY	1
	111 0 9081 09004	9P PC JOINNER ASSY	1
CLOCK	111 0 9081 10002	10P MICRO SOCKET AY	1
CJ01	111 2 6291 10970	JUMPER LEAD-12.5	1
CJ02	111 2 6291 11170	JUMPER LEAD-7.5S	1
CJ03	111 2 6291 11570	JUMPER LEAD-20S	1
CJ06	111 2 6291 11270	JUMPER LEAD-10S	1
CSW1	4 2311 10770	SLIDE SWITCH	1
CSW2	4 2311 10770	SLIDE SWITCH	1
CSW3	4 2311 10870	PUSH SWITCH	1
CSW4	4 2311 10870	PUSH SWITCH	1
CSW5	4 2311 10870	PUSH SWITCH	1
SW01	4 2311 13870	SLIDE SWITCH	1
SW02	4 2311 13870	SLIDE SWITCH	1
SW03	4 2311 13870	SLIDE SWITCH	1
SW04	4 2311 13870	SLIDE SWITCH	1
0001	4 2361 14670	1P MICRO PLUG	6
0002	4 2361 14670	1P MICRO PLUG	3
VARIABLE RESISTORS			
VR001	4 2221 33771	TUNING VR B-100K	1
VR002	4 2221 37970	6C2VFRB-100K	1
VR003	4 2221 37970	6C2VFRB-100K	1
VR004	4 2221 37970	6C2VFRB-100K	1
VR101	4 2221 32770	8LFRB-3K	1
VR201	4 2221 41570	12C2FR9B-10K	1
VR202	4 2221 41670	12C2FR9B-200K	1
VR301	4 2221 34870	12FRN10FB-10K	1
VR501	4 2221 41470	12C2FR9B-5K	1
VR502	4 2221 40170	8PFRB-500	1
VR601	4 2221 32870	8LFRB-5K	1
CAPACITORS			
CC01	C1EYAZ154F--	CERAMIC 0.15M F 25V	1
CC02	C1HYAK103B--	CERAMIC 10000P B 50V	1
CJ04	R--KA0R00A	CHIP JUMPER	1
CJ05	R--KA0R00A	CHIP JUMPER	1
CR01	R2BKAJ333A	M-GLAZE 33K 1/8WJ	1
CR02	R2BKAJ102A	M-GLAZE 1K 1/8WJ	1
CR03	R2BKAJ104A	M-GLAZE 100K 1/8WJ	1
CR04	R2BKAJ104A	M-GLAZE 100K 1/8WJ	1
CR05	R2BKAJ101A	M-GLAZE 100 1/8WJ	1
CR06	R2BKAJ102A	M-GLAZE 1K 1/8WJ	1
CR07	R2BKAJ100A	M-GLAZE 10 1/8WJ	1
C001	C1HYGK102B--	CERAMIC 1000P B 50V	1
C002	C1HYGK102B--	CERAMIC 1000P B 50V	1
C003	C1HYGK102B--	CERAMIC 1000P B 50V	1
C004	C1HYAK102B--	CERAMIC 1000P B 50V	1
C005	C1HYGZ473F--	CERAMIC 47000P F 50V	1
C006	C1HYGZ473F--	CERAMIC 47000P F 50V	1
C007	C1HYGZ473F--	CERAMIC 47000P F 50V	1
C008	C1HYGZ473F--	CERAMIC 47000P F 50V	1
C009	C1HYGZ473F--	CERAMIC 47000P F 50V	1
C012	C1HYGZ473F--	CERAMIC 47000P F 50V	1
C013	C1HYGZ473F--	CERAMIC 47000P F 50V	1
C014	C1HYGZ473F--	CERAMIC 47000P F 50V	1
C015	C1HYGZ473F--	CERAMIC 47000P F 50V	1
C101	C1HYGK102B--	CERAMIC 1000P B 50V	1
C102	C1HYAK103B--	CERAMIC 10000P B 50V	1
C103	C1HYAK391B--	CERAMIC 390P B 50V	1
C104	C1HYGZ473F--	CERAMIC 47000P F 50V	1
C105	C1HYGZ473F--	CERAMIC 47000P F 50V	1
C106	C1HYGK103B--	CERAMIC 10000P B 50V	1
C107	C1HYAK102B--	CERAMIC 1000P B 50V	1
C108	C1HYAK102B--	CERAMIC 1000P B 50V	1
C109	C1HYGK103B--	CERAMIC 10000P B 50V	1
C118	C1ALEM108A--	ELECT 1000M 10V	1
C121	C1HRE-105A--	ELECT 1M 50V	1
C122	C1CRE-476A--	ELECT 47M 16V	1
C201	C0JRE-476A--	ELECT 47M 6.3V	1
C202	C1HCGJ121RH-	CERAMIC 120P RH 50V	1
C203	C1HYGK391B--	CERAMIC 390P B 50V	1

NOTES:
1. Parts orders must contain Model Number, Parts Number and Description.
2. Ordering quantity of resistors, capacitors and screws must be multiple of 10 pcs.
3. Component parts indicated by parentheses in the column Q'ty are not available.

PARTS LIST (TV)

Schematic Location	Parts No.	Description	Q'ty
C204	C0JRE-107A--	ELECT 100M 6.3V	1
C205	C1HBRJ104A--	M-MYLAR 0.1M 50V	1
C206	C1HBRJ224A--	M-MYLAR 0.22M 50V	1
C301	C1HCAJ330RH-	CERAMIC 33P RH 50V	1
C302	C1HYGK103B--	CERAMIC 10000P B 50V	1
C303	C1HYGK103B--	CERAMIC 10000P B 50V	1
C304	C1HYGK103B--	CERAMIC 10000P B 50V	1
C305	C1HYGZ473F--	CERAMIC 47000P F 50V	1
C306	C1HYAZ473F--	CERAMIC 47000P F 50V	1
C307	C1HYGZ473F--	CERAMIC 47000P F 50V	1
C308	C1HCAJ330RH-	CERAMIC 33P RH 50V	1
C309	C1HCAD2R0CK-	CERAMIC 2P CK 50V	1
C311	C1HYAZ223F--	CERAMIC 22000P F 50V	1
C312	C1CRE-226A--	ELECT 22M 16V	1
C313	C1ERE-475A--	ELECT 4.7M 25V	1
C351	C1HYGZ473F--	CERAMIC 47000P F 50V	1
C352	C1HYGZ473F--	CERAMIC 47000P F 50V	1
C353	C1HYGZ473F--	CERAMIC 47000P F 50V	1
C354	C0JRE-476A--	ELECT 47M 6.3V	1
C355	C0JRE-477A--	ELECT 470M 6.3V	1
C356	C0JRE-107A--	ELECT 100M 6.3V	1
C357	C0JRE-476A--	ELECT 47M 6.3V	1
C358	C1HBRJ683A--	M-MYLAR 0.068M 50V	1
C359	C1HYGK103B--	CERAMIC 10000P B 50V	1
C361	C1CRE-106A--	ELECT 10M 16V	1
C362	C1HYGK222B--	CERAMIC 2200P B 50V	1
C363	C1HCGJ221RH-	CERAMIC 220P RH 50V	1
C364	C1ERE-475A--	ELECT 4.7M 25V	1
C365	C0JRE-227A--	ELECT 220M 6.3V	1
C366	C1CLEM108A--	ELECT 1000M 16V	1
C401	C1ERE-475A--	ELECT 4.7M 25V	1
C402	C1HYGK821B--	CERAMIC 820P B 50V	1
C403	C1HBRJ473A--	M-MYLAR 0.047M 50V	1
C404	C1HRE-105A--	ELECT 1M 50V	1
C501	C1HBRJ104A--	M-MYLAR 0.1M 50V	1
C502	C0JRE-476A--	ELECT 47M 6.3V	1
C503	C0JRE-477A--	ELECT 470M 6.3V	1
C504	C0JRE-108A--	ELECT 1000M 6.3V	1
C505	C1EEEM225S--	ELECT 2.2M 25V	1
C506	C1EEEM225S--	ELECT 2.2M 25V	1
C507	C1HYGK561B--	CERAMIC 560P B 50V	1
C508	C1HBRJ104A--	M-MYLAR 0.1M 50V	1
C601	C1HRE-105A--	ELECT 1M 50V	1
C602	C1HFRJ682A--	MYLAR 0.0068M 50V	1
C603	C1HGRJ562A--	COMP-CON 0.0056M 50V	1
C604	C1HYGK561B--	CERAMIC 560P B 50V	1
C605	C1CRE-106A--	ELECT 10M 16V	1
C606	C1HBRJ473A--	M-MYLAR 0.047M 50V	1
C607	C1HBRJ223A--	M-MYLAR 0.022M 50V	1
C608	C0JRE-108A--	ELECT 1000M 6.3V	1
C611	C2AFRJ273B--	MYLAR 0.027M 100V	1
C612	C2HYDK472W--	CERAMIC 4700P W 500V	1
C613	C1HRE-106A--	ELECT 10M 50V	1
C614	C1HRE-105A--	ELECT 1M 50V	1
C615	C1HRE-476A--	ELECT 47M 50V	1
C616	C1HRE-475A--	ELECT 4.7M 50V	1
C617	C2HYDK472W--	CERAMIC 4700P W 500V	1
C621	C2HYDK472W--	CERAMIC 4700P W 500V	1
C701	C1CRE-476A--	ELECT 47M 16V	1
C702	C1HYGZ473F--	CERAMIC 47000P F 50V	1
C703	C1EYDK473C--	CERAMIC 0.047M C 25V	1
C704	C1CRE-226A--	ELECT 22M 16V	1
FIXED RESISTORS			
CR08	R2ESPJ102A	CARBON 1K 1/4WJ	1
CR09	R2BSPJ473A	CARBON 47K 1/8WJ	1
R001	R2BKAJ472A	M-GLAZE 4.7K 1/8WJ	1
R002	R2BKAJ472A	M-GLAZE 4.7K 1/8WJ	1
R101	R2BKAJ123A	M-GLAZE 12K 1/8WJ	1
R102	R2BKAJ332A	M-GLAZE 3.3K 1/8WJ	1
R103	R2BKAJ221A	M-GLAZE 220 1/8WJ	1
R104	R2BKAJ271A	M-GLAZE 270 1/8WJ	1
R105	R2BKAJ122A	M-GLAZE 1.2K 1/8WJ	1
R106	R2ESUJ2R2A	CARBON 2.2 1/4WJ	1
R108	R2BKAJ102A	M-GLAZE 1K 1/8WJ	1
R121	R2BKAJ334A	M-GLAZE 330K 1/8WJ	1
R122	R2BKAJ332A	M-GLAZE 3.3K 1/8WJ	1
R123	R2BKAJ332A	M-GLAZE 3.3K 1/8WJ	1

Schematic Location	Parts No.	Description	Q'ty
R124	R2BKAJ471A	M-GLAZE 470 1/8WJ	1
R125	R2BKAJ332A	M-GLAZE 3.3K 1/8WJ	1
R126	R2BKAJ682A	M-GLAZE 6.8K 1/8WJ	1
R201	R2BKAJ101A	M-GLAZE 100 1/8WJ	1
R202	R2BKAJ331A	M-GLAZE 330 1/8WJ	1
R203	R2BKAJ682A	M-GLAZE 6.8K 1/8WJ	1
R204	R2BKAJ272A	M-GLAZE 2.7K 1/8WJ	1
R205	R2BKAJ222A	M-GLAZE 2.2K 1/8WJ	1
R206	R2BKAJ102A	M-GLAZE 1K 1/8WJ	1
R207	R2BKAJ681A	M-GLAZE 680 1/8WJ	1
R208	R2BKAJ152A	M-GLAZE 1.5K 1/8WJ	1
R211	R2BKAJ100A	M-GLAZE 10 1/8WJ	1
R212	R2BKAJ123A	M-GLAZE 12K 1/8WJ	1
R213	R2BKAJ105A	M-GLAZE 1M 1/8WJ	1
R214	R2BKAJ222A	M-GLAZE 2.2K 1/8WJ	1
R215	R2ESUJ155A	CARBON 1.5M 1/4WJ	1
R216	R2BKAJ273A	M-GLAZE 27K 1/8WJ	1
R301	R2BKAJ102A	M-GLAZE 1K 1/8WJ	1
R302	R2BKAJ471A	M-GLAZE 470 1/8WJ	1
R303	R2BKAJ472A	M-GLAZE 4.7K 1/8WJ	1
R304	R2BKAJ472A	M-GLAZE 4.7K 1/8WJ	1
R305	R2BKAJ472A	M-GLAZE 4.7K 1/8WJ	1
R306	R2BKAJ472A	M-GLAZE 4.7K 1/8WJ	1
R307	R2BKAJ472A	M-GLAZE 4.7K 1/8WJ	1
R308	R2BKAJ472A	M-GLAZE 4.7K 1/8WJ	1
R311	R2BKAJ103A	M-GLAZE 10K 1/8WJ	1
R312	R2BKAJ103A	M-GLAZE 10K 1/8WJ	1
R313	R2BKAJ472A	M-GLAZE 4.7K 1/8WJ	1
R314	R2BKAJ272A	M-GLAZE 2.7K 1/8WJ	1
R351	R2BKAJ821A	M-GLAZE 820 1/8WJ	1
R352	R2BKAJ221A	M-GLAZE 220 1/8WJ	1
R353	R2BSPJ680A	CARBON 68 1/8WJ	1
R401	R2BKAJ331A	M-GLAZE 330 1/8WJ	1
R402	R2BKAJ473A	M-GLAZE 47K 1/8WJ	1
R403	R2BKAJ472A	M-GLAZE 4.7K 1/8WJ	1
R501	R2BKAJ682A	M-GLAZE 6.8K 1/8WJ	1
R502	R2BKAJ822A	M-GLAZE 8.2K 1/8WJ	1
R503	R2BKAJ561A	M-GLAZE 560 1/8WJ	1
R504	R2ESPJ221A	CARBON 220 1/4WJ	1
R505	R2BSPJ223A	CARBON 22K 1/8WJ	1
R506	R2BKAJ563A	M-GLAZE 56K 1/8WJ	1
R507	R2BSPJ334A	CARBON 330K 1/8WJ	1
R508	R2BKAJ821A	M-GLAZE 820 1/8WJ	1
R509	R2BKAJ272A	M-GLAZE 2.7K 1/8WJ	1
R510	R2ESPJ682A	CARBON 6.8K 1/4WJ	1
R511	R2ESPJ6R8A	CARBON 6.8 1/4WJ	1
R512	R2BKAJ221A	M-GLAZE 220 1/8WJ	1
R513	R2BSPJ4R7A	CARBON 4.7 1/8WJ	1
R514	R2BSPJ220A	CARBON 22 1/8WJ	1
R515	R2BKAJ683A	M-GLAZE 68K 1/8WJ	1
R516	R2BKAJ221A	M-GLAZE 220 1/8WJ	1
R517	R2BKAJ563A	M-GLAZE 56K 1/8WJ	1
R518	R2BKAJ273A	M-GLAZE 27K 1/8WJ	1
R521	R2BKAJ393A	M-GLAZE 39K 1/8WJ	1
R601	R2BKAJ472A	M-GLAZE 4.7K 1/8WJ	1
R602	R2BKAJ683A	M-GLAZE 68K 1/8WJ	1
R603	R2BKAJ103A	M-GLAZE 10K 1/8WJ	1
R604	R2BKAJ101A	M-GLAZE 100 1/8WJ	1
R605	R2BKAJ821A	M-GLAZE 820 1/8WJ	1
R606	R2ESPJ223A	CARBON 22K 1/4WJ	1
R611	R2ESPJ100A	CARBON 10 1/4WJ	1
R612	R2BKAJ562A	M-GLAZE 5.6K 1/8WJ	1
R613	R2BKAJ100A	M-GLAZE 10 1/8WJ	1
R614	R2BKAJ683A	M-GLAZE 68K 1/8WJ	1
R615	R2ESPJ821A	CARBON 820 1/4WJ	1
R621	R2BKAK685A	M-GLAZE 6.8M 1/8WK	1
R622	R2BKAK685A	M-GLAZE 6.8M 1/8WK	1
R701	R2ESPJ182A	CARBON 1.8K 1/4WJ	1
R702	R2BKAJ103A	M-GLAZE 10K 1/8WJ	1
R703	R2BKAJ151A	M-GLAZE 150 1/8WJ	1
R706	R2HCPK101A	SOLID 100 1/2WK	1
R707	R2BKAJ101A	M-GLAZE 100 1/8WJ	1
TUBES AND SEMICONDUCTORS			
CD01	4 2021 26770	ZE DIODE GZA3.0Y	1
CQ01	TG2SC536SPF--	SI TR 2SC536SP	1
CQ02	TG2SD879-----	SI TR 2SD879	1
CQ03	TG2SD879-----	SI TR 2SD879	1
CQ04	TG2SC536-----	SI TR 2SC536	1

NOTES:
1. Parts orders must contain Model Number, Parts Number and Description.
2. Ordering quantity of resistors, capacitors and screws must be multiple of 10 pcs.
3. Component parts indicated by parentheses in the column Q'ty are not available.

PARTS LIST (TV)

Schematic Location	Parts No.	Description	Q'ty
D001	4 2021 25970	SI DIODE MA856	1
D002	4 2021 25970	SI DIODE MA856	1
D301	4 2021 07470	SI DIODE 1S2076	1
D302	4 2021 07470	SI DIODE 1S2076	1
D303	4 2021 07470	SI DIODE 1S2076	1
D304	4 2021 07470	SI DIODE 1S2076	1
D305	4 2021 07470	SI DIODE 1S2076	1
D351	4 2021 20870	ZE DIODE RD5.6EB1	1
D352	4 2021 20970	SI DIODE W03A	1
D501	4 2021 07470	SI DIODE 1S2076	1
D502	4 2021 07470	SI DIODE 1S2076	1
D601	4 2020 03500	GE DIODE 1S188TV	1
D602	4 2021 17370	SI DIODE W09C	1
D603	4 2021 07470	SI DIODE 1S2076	1
D604	4 2021 07470	SI DIODE 1S2076	1
D605	4 2021 07670	SI DIODE 1S2076A	1
D606	4 2021 07670	SI DIODE 1S2076A	1
D607	4 2021 10270	SI DIODE ERB24-04D	1
D701	4 2020 03500	GE DIODE 1S188TV	1
D702	4 2021 26170	ZE DIODE GZA6.8X	1
D703	4 2021 07470	SI DIODE 1S2076	1
D704	4 2021 07470	SI DIODE 1S2076	1
D705	4 2021 07470	SI DIODE 1S2076	1
D707	4 2021 07470	SI DIODE 1S2076	1
IC101	4 2061 11770	IC-HA11445	1
IC301	4 2061 09771	IC-LA4140-1	1
IC601	4 2021 10970	IC ZE DIODE UPC574J	1
Q101	TG2SC930SPE--	SI TR 2SC930SP	1
Q201	TG2SC536SPF--	SI TR 2SC536SP	1
Q202	TN2SC945--P--	SI TR 2SC945	1
or	TN2SC945--Q--	SI TR 2SC945	1
Q301	TT2SC2236----	SI TR 2SC2236	1
Q501	TG2SC536SPF--	SI TR 2SC536SP	1
Q502	TG2SD545--F--	SI TR 2SD545	1
Q503	TG2SB598--F--	SI TR 2SB598	1
Q504	TG2SC536SPF--	SI TR 2SC536SP	1
or	TG2SC536SPG--	SI TR 2SC536SP	1
Q601	TG2SC536SPF--	SI TR 2SC536SP	1
or	TG2SC536SPG--	SI TR 2SC536SP	1
Q602	TM2SC2264-Q--	SI TR 2SC2264	1
or	TM2SC2264-R--	SI TR 2SC2264	1
Q701	TG2SD1061-R2L	SI TR 2SD1061	1
or	TG2SD1061-S-L	SI TR 2SD1061	1
Q702	TG2SC536SPF--	SI TR 2SC536SP	1
or	TG2SC536SPG--	SI TR 2SC536SP	1
V201	QEME2239----S	CRT E2239	1
or	QNMC215P4---S	CRT C215P4	1

Schematic Location	Parts No.	Description	Q'ty

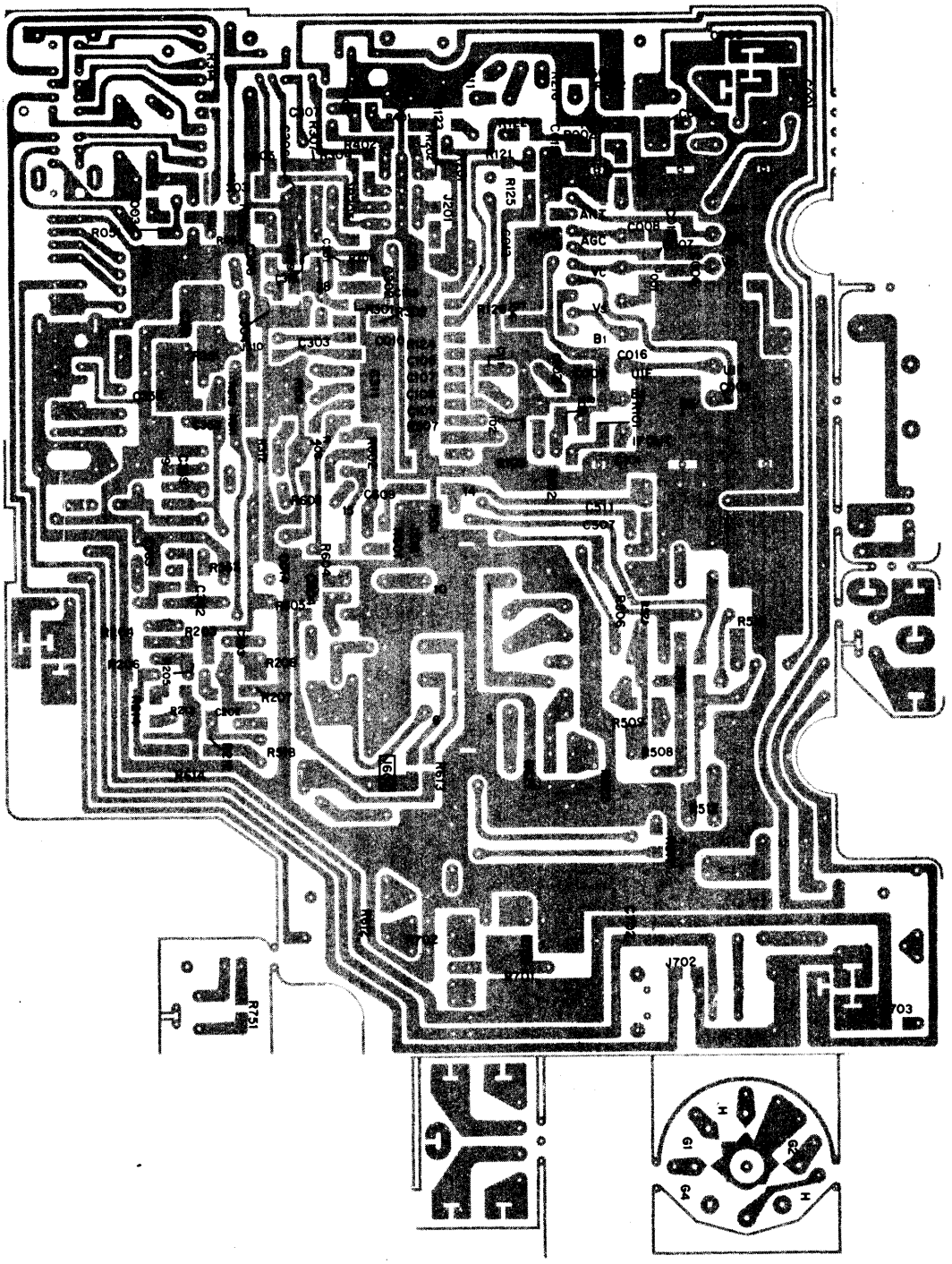
NOTES:
1. Parts orders must contain Model Number, Parts Number and Description.
2. Ordering quantity of resistors, capacitors and screws must be multiple of 10 pcs.
3. Component parts indicated by parentheses in the column Q'ty are not available.

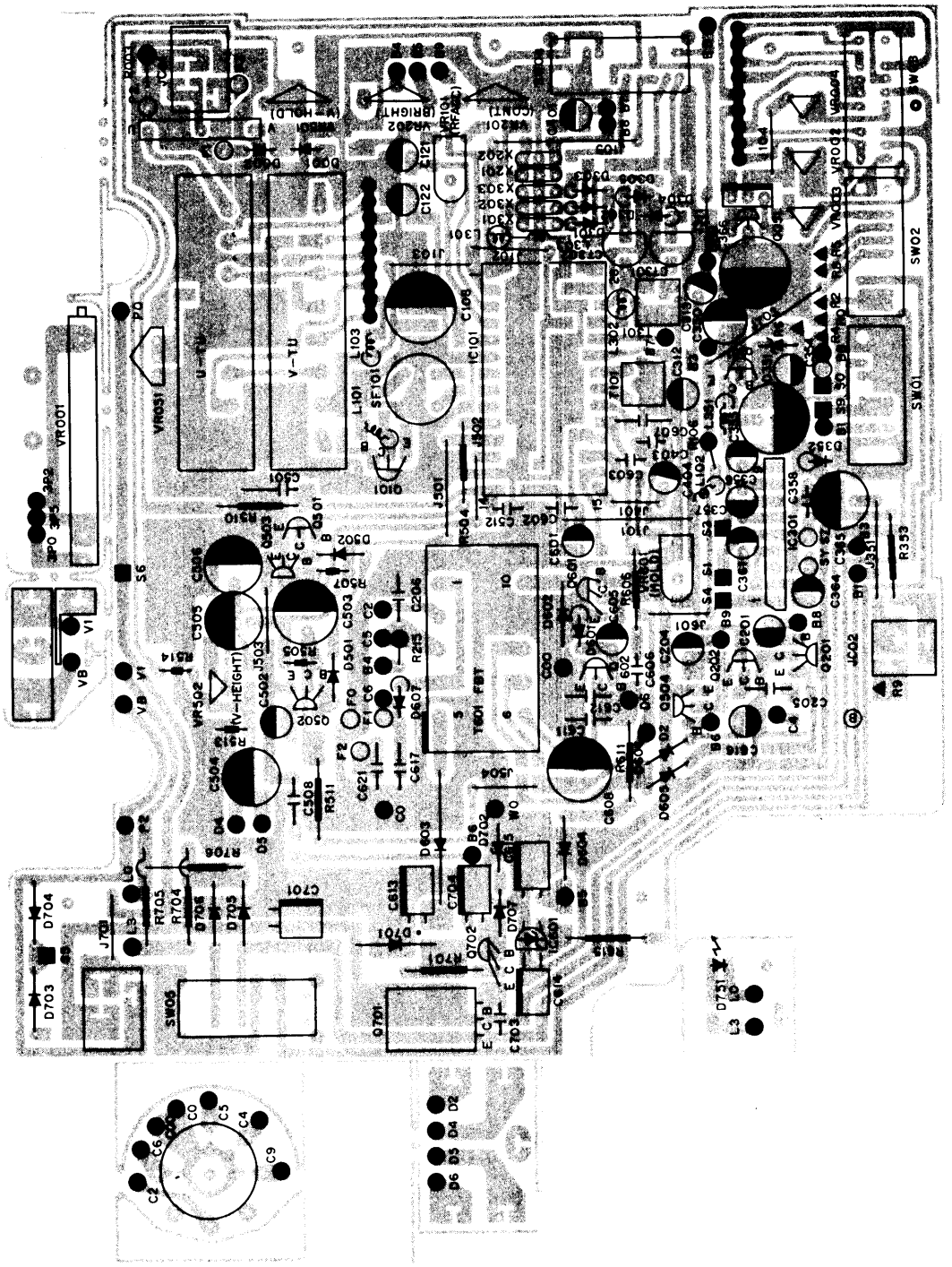
PARTS LIST (RADIO)

Schematic Location	Parts No.	Description	Q'ty
ELECTRICAL PARTS			
	111 0 9181 00870	RADIO ASSY	1
	4 2361 16070	3P M MICRO PLUG	1
	4 2361 17377	7P MINI MICRO PLUG	1
	111 0 9061 46370	PCB ASSY 82JD-R-KUW	1
	4 2261 49670	PC BOARD 82JD-R	1
RC01	C1HYGK472B--	CERAMIC 4700P B 50V	1
RC02	C1HYGZ223F--	CERAMIC 22000P F 50V	1
RC04	C1HCAD3R0RH-	CERAMIC 3P RH 50V	1
RC05	C1HYGZ223F--	CERAMIC 22000P F 50V	1
RC06	C1HCGJ150CH-	CERAMIC 15P CH 50V	1
RC07	C1HYGK331B--	CERAMIC 330P B 50V	1
RC08	C1HCAD7R0RH-	CERAMIC 7P RH 50V	1
RC09	C1HYGZ223F--	CERAMIC 22000P F 50V	1
RC10	C1HYGK103B--	CERAMIC 10000P B 50V	1
RC11	C1HCAD8R0RH-	CERAMIC 8P RH 50V	1
RC12	C1HYGZ223F--	CERAMIC 22000P F 50V	1
RC13	C1HCGJ150RH-	CERAMIC 15P RH 50V	1
RC14	C1HYGZ473F--	CERAMIC 47000P F 50V	1
RC15	C1HCGD4R0RH-	CERAMIC 4P RH 50V	1
RC16	C1HCGD2R0CK-	CERAMIC 2P CK 50V	1
RC17	C1HYGZ223F--	CERAMIC 22000P F 50V	1
RC20	C1HYAZ223F--	CERAMIC 22000P F 50V	1
RC22	C1HYGZ223F--	CERAMIC 22000P F 50V	1
RC23	C1HYAZ223F--	CERAMIC 22000P F 50V	1
RC24	C1HYGK331B--	CERAMIC 330P B 50V	1
RC25	C1HYGZ223F--	CERAMIC 22000P F 50V	1
RC26	C1HYGK103B--	CERAMIC 10000P B 50V	1
RC27	C1HYGZ223F--	CERAMIC 22000P F 50V	1
RC28	C1HYGZ223F--	CERAMIC 22000P F 50V	1
RC29	C1HYGZ223F--	CERAMIC 22000P F 50V	1
RC30	C1HYGK153B--	CERAMIC 15000P B 50V	1
RC37	C1HYGZ473F--	CERAMIC 47000P F 50V	1
RC38	C1HYGZ473F--	CERAMIC 47000P F 50V	1
RC39	C1HYGZ223F--	CERAMIC 22000P F 50V	1
RR01	R2BKAJ224A	M-GLAZE 220K 1/8WJ	1
RR02	R2BKAJ123A	M-GLAZE 12K 1/8WJ	1
RR03	R2BKAJ821A	M-GLAZE 820 1/8WJ	1
RR07	R2BKAJ472A	M-GLAZE 4.7K 1/8WJ	1
RR10	R2BKAJ123A	M-GLAZE 12K 1/8WJ	1
RR11	R2BKAJ220A	M-GLAZE 22 1/8WJ	1
RR12	R2BKAJ682A	M-GLAZE 6.8K 1/8WJ	1
RR13	R2BKAJ104A	M-GLAZE 100K 1/8WJ	1
RR14	R2BKAJ100A	M-GLAZE 10 1/8WJ	1
RR15	R2BKAJ151A	M-GLAZE 150 1/8WJ	1
RR16	R2BKAJ681A	M-GLAZE 680 1/8WJ	1
RR17	R2BKAJ823A	M-GLAZE 82K 1/8WJ	1
RR18	R2BKAJ470A	M-GLAZE 47 1/8WJ	1
RR19	R2BKAJ561A	M-GLAZE 560 1/8WJ	1
RR20	R2BKAJ470A	M-GLAZE 47 1/8WJ	1
RR21	R2BKAJ151A	M-GLAZE 150 1/8WJ	1
RR22	R2BKAJ820A	M-GLAZE 82 1/8WJ	1
RR23	R2BKAJ100A	M-GLAZE 10 1/8WJ	1
RR24	R2BKAJ220A	M-GLAZE 22 1/8WJ	1
RR25	R2BKAJ154A	M-GLAZE 150K 1/8WJ	1
RR26	R2BKAJ104A	M-GLAZE 100K 1/8WJ	1
RR28	R2BKAJ153A	M-GLAZE 15K 1/8WJ	1
RR30	R2BKAJ822A	M-GLAZE 8.2K 1/8WJ	1
RR33	R2BKAJ683A	M-GLAZE 68K 1/8WJ	1
RR34	R2BKAJ121A	M-GLAZE 120 1/8WJ	1
RR35	R2BKAJ470A	M-GLAZE 47 1/8WJ	1
RR36	R2BKAJ122A	M-GLAZE 1.2K 1/8WJ	1
RR37	R2BKAJ392A	M-GLAZE 3.9K 1/8WJ	1
	111 0 9081 02030	2P MICRO SOCKET ASSY	1
RC03	C1HCDK220RH-	CERAMIC 22P RH 50V	1
RC18	C1ERE-106A--	ELECT 10M 25V	1
RC19	C0JRE-227A--	ELECT 220M 6.3V	1
RC21	C1ARE-107A--	ELECT 100M 10V	1
RC31	C1HRE-474A--	ELECT 0.47M 50V	1
RC32	C1ARE-476A--	ELECT 47M 10V	1
RC33	C1ERE-106A--	ELECT 10M 25V	1
RC34	C1ERE-475A--	ELECT 4.7M 25V	1
RC36	C1ERE-475A--	ELECT 4.7M 25V	1
RD01	4 2021 07470	SI DIODE 1S2076	1
RD02	4 2021 15370	VARACTOR DIODE 1S553	1
RIC1	4 2061 11270	IC-TA7614AP	1
RL01	4 2591 04271	RF COIL	1
RL02	4 2591 04170	TRAP COIL	1
RL03	4 2591 05570	FM RF COIL	1
RL04	4 2571 05270	BAR ANTENNA	1
RL05	4 2721 02209	PEAKING COIL 220	1
RQ01	TG2SC668--D--	SI TR 2SC668	1
RQ02	TG2SC668--E--	SI TR 2SC668	1
RQ03	TG2SC930--E--	SI TR 2SC930	1
RQ04	TG2SC536--F--	SI TR 2SC536	1
RR04	R2ESUJ121A	CARBON 120 1/4WJ	1
RR05	R2ESUJ272A	CARBON 2.7K 1/4WJ	1
RR08	R2ESPJ271A	CARBON 270 1/4WJ	1
RR09	R2ESPJ123A	CARBON 12K 1/4WJ	1
RR27	R2ESUJ104A	CARBON 100K 1/4WJ	1
RR29	R2ESPJ182A	CARBON 1.8K 1/4WJ	1
RR31	R2ESPJ330A	CARBON 33 1/4WJ	1
RR32	R2ESPJ273A	CARBON 27K 1/4WJ	1
RT01	4 2561 12370	FM IF TRANS	1
or	4 2561 13970	FM IF TRANS	1
RT02	4 2561 12470	FM DET TRANS	1
or	4 2561 14070	FM DET TRANS	1
RT03	4 2561 12570	AM OSC TRANS	1
or	4 2561 14170	AM OSC TRANS	1
RT04	4 2561 12670	AM IF TRANS	1
or	4 2561 14270	AM IF TRANS	1
RT05	4 2561 12770	AM IF TRANS	1
or	4 2561 14370	AM IF TRANS	1
RVC1	4 2241 04870	VARICON	1
RX01	4 2531 12770	FM BAND PASS FILTER	1
RX02	4 2531 11871	CERAMIC FILTER 10.7M	1
RX03	4 2531 18470	CERAMIC FILTER 455K	1
	111 0 4131 04770	RADIO DRUM ASSY-TNC	1
Y001	111 2 4131 11670	RADIO DRUM-TNC	1
Y002	111 2 4111 13770	SHAFT DIAL-TNC	1
	111 2 3121 21170	RADIO CHASSIS-TPE	1
	111 2 3631 27470	BAR ANT HOLDER-TNC	2
	111 2 4131 11770	RADIO PULLY-TNC	1
	111 2 4141 10470	TIMING BELT-TNC	1
Y101	102 3 2203 00802	SBRT2, 3.0X 8, Z1	1
Y111	111 2 4211 16070	SPECIAL SCREW-TNC	2
Y112	111 2 4211 16070	SPECIAL SCREW-TNC	1
Y121	108 3 1103 00001	KNR , 3.0, Z1	1

NOTES:
1. Parts orders must contain Model Number, Parts Number and Description.
2. Ordering quantity of resistors, capacitors and screws must be multiple of 10 pcs.
3. Component parts indicated by parentheses in the column Q'ty are not available.

CIRCUIT BOARD DIAGRAM (TV)

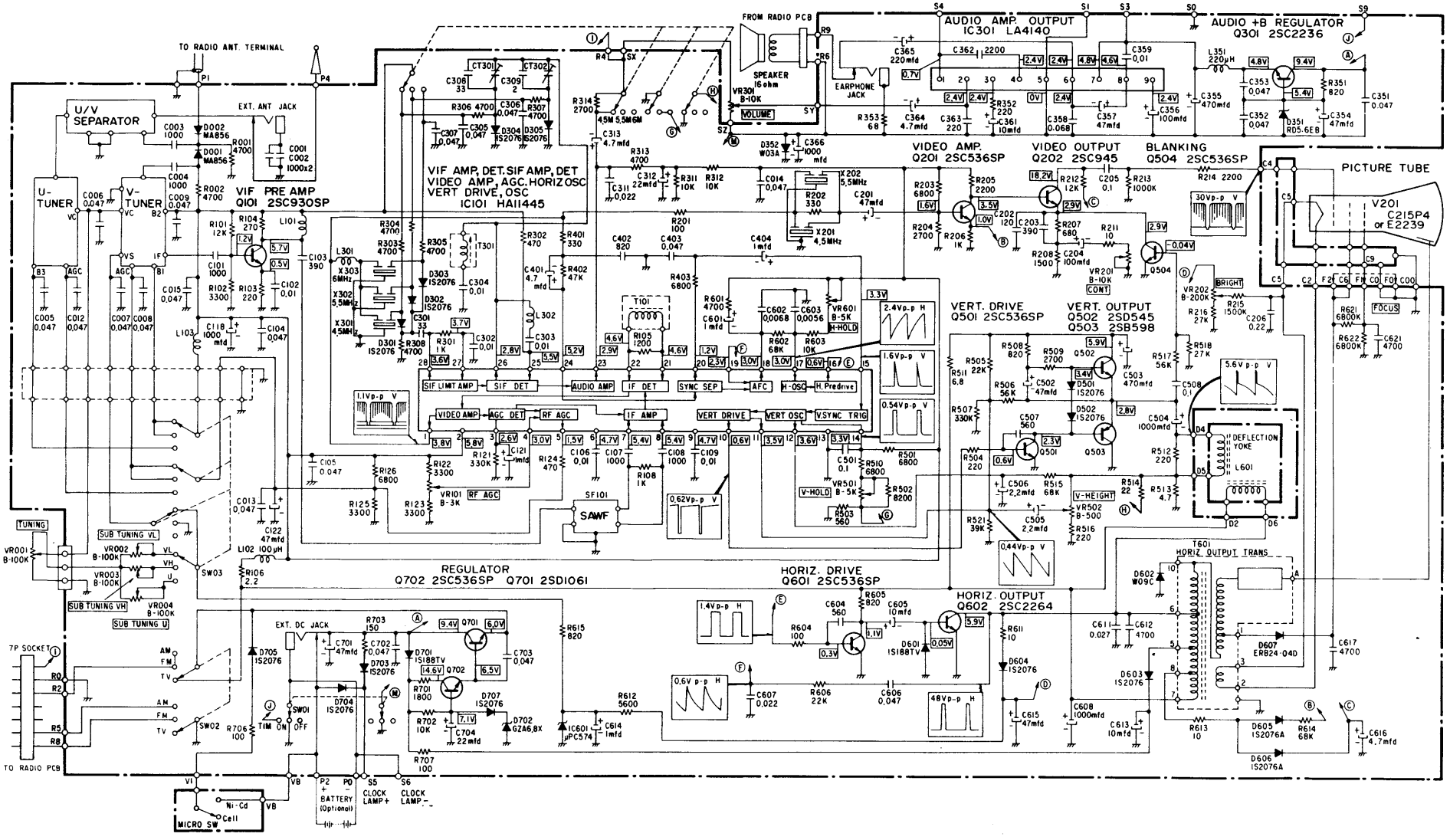




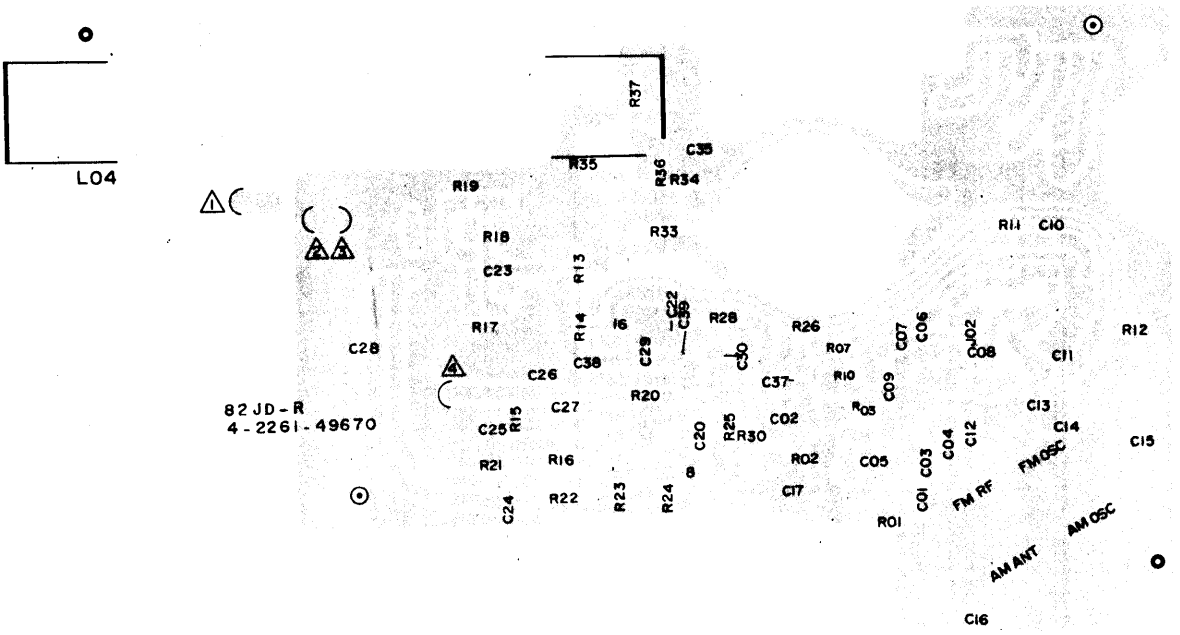
SCHEMATIC DIAGRAM (TV)

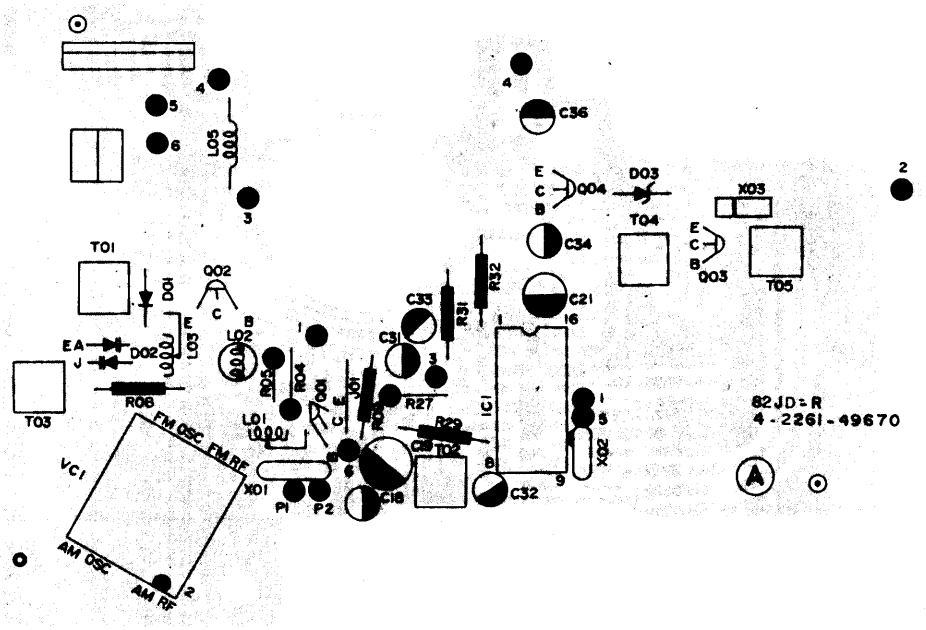
NOTES:

1. All resistance values are in ohm. K=1,000 M=1,000,000
2. Unless otherwise noted in schematic diagram, all capacitors less than 1 are expressed in mfd (μF) and the values larger than 1 are in pF.
3. Voltage reading taken with High Impedance Voltmenter from point indicated to chassis ground, tuner on unused channel, contrast at max., other controls at normal.
4. All wave forms measured with strong signal input, contrast set to give normal picture.
5. Voltage reading may vary ± 20%.
6. This is a fundamental circuit diagram. Some production changes may be made without revision of the diagram.

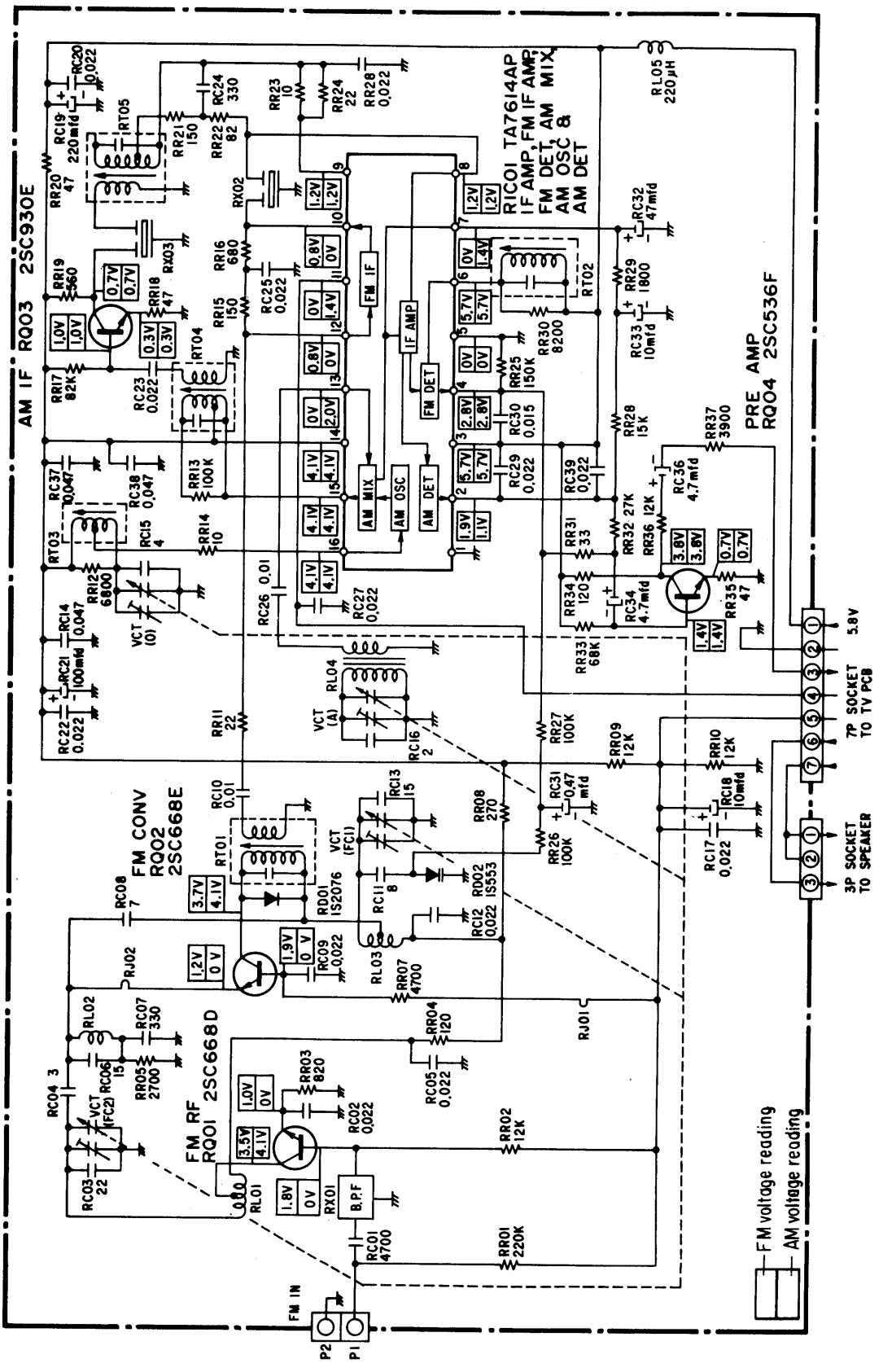


CIRCUIT BOARD DIAGRAM (RADIO)

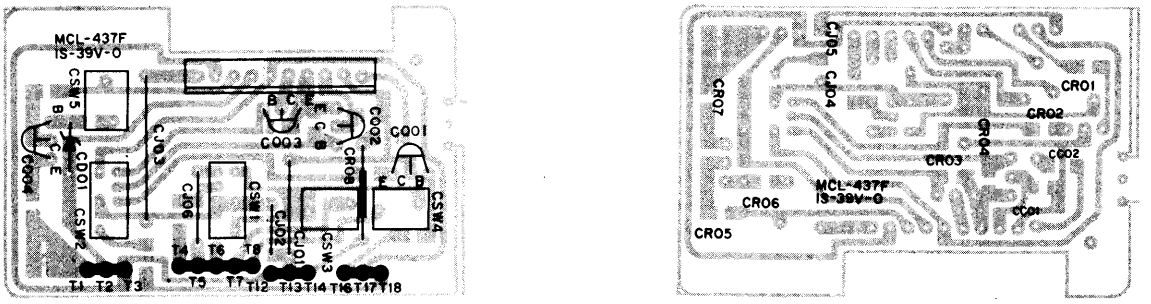




SCHEMATIC DIAGRAM (RADIO)



CIRCUIT BOARD DIAGRAM (CLOCK)



SCHEMATIC DIAGRAM (CLOCK)